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UNIVERSITY OF ALBERTA

THE RELATIONSHIP BETWEEN SUBJECTIVE TIME PERCEPTION AND SUBJECTIVE WELL-BEING PERCEPTION IN PRISON INMATES

BY

© RETA GALE BULANI

A THESIS SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF NURSING

FACULTY OF NURSING

Edmonton, Alberta

Fall 1991

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June 22, 1990

Edmonton, Alberta
Canada

Elizabeth Janice
Managing Editor
Le Jacq Publishing Inc.
47 Arch Street
Greenwich, Conneticut
U.S.A.
06830

Dear Elizabeth Janice:

I am presently enrolled in the Master of Nursing program at the University of Alberta, Edmonton, Alberta, Canada. For my thesis, I am planning to conduct a study entitled "Relationship Between Subjective Time Perception and Self-Perception of Well-Being In Prison Inmates". I would like to use the 22-item Psychological General Well-Being Index questionnaire to measure well-being. Dr. Harold Dupuy has written me and advised me that the questionnaire is in the public domain and therefore may be used for research purposes. Through telephone communication with him, I was able to find out your telephone number.

I would like permission to use information from chapter 9 (pp. 170-183) "The Psychological General Well-Being (PGWB) Index", from your book entitled: Assessment of Quality of Life in Clinical Trials of Cardiovascular Therapies (1984), for the purposes of a thesis. I would like to report on the administration, validity, reliability, generalizability, applications, strengths and limitations of the PGWB as indicated in this chapter. I would also like to reproduce Table 1, "Descriptive Characteristics of the 22 Item and 6 Subscales of PGWB Index" on pages 171 and 172 in my thesis. May I also have permission to photocopy the PGWB Index questionnaire contained in your publication?

Thank you very much for you time. I look forward to hearing from you.

Respectfully,

Bulani

Reta Bulani
Graduate Student

HAYMARKET
DOYMA INC.

53 PARK PLACE, NEW YORK, NY 10007, (212) 766 4300

July 16, 1990

Reta Bulani

Edmonton, Alberta
Canada

Dear Ms. Bulani,

Regarding your request to use information from our book entitled "Assessment of Quality of Life in Clinical Trials of Cardiovascular Therapies", we hereby authorize you to use the information as stated in your request and to reproduce Table 1 on pages 171,172. You may also photocopy the PGWB index. We do require, however, that you footnote all extractions properly, using the appropriate information found in the book.

Good luck with your thesis!

Sincerely,

Joseph Hinman
General Manager

April 11, 1988

Dear Reta Bulani,

I enjoyed our phone talk today. I hope some of the material I am sending you will be "interesting;" while I expect most of it to be tedious!

Should you be asked, the Psychological General Well-Being schedule is in the "public domain" & may be used, but not copyrited; for practical &/or research purposes.

While I am the "sole author," I developed the PGWB while working for the US Federal Gov't. Hence, it is available for use as is or even modified by any & all.

If you can, I would like you to use the Research Version, because I need data on its component parts.

I wish you well for your future,

Sincerely

Harold J Dupuy PhD

June 11, 1990

Edmonton, Alberta
Canada
T5T 2J8

Sharon Sanders Ph.D.
Senior Employment Administrator
Pharmaceutical Research and Development Division
Bristol-Myers Company
5 Research Parkway
P.O. Box 5100
Wallingford, CT
06492-7660

Dear Ms. Sanders:

You will recall that you sent me information on the Time Experience Scales that you developed. My research proposal entitled "Relationship Between Subjective Time Perception and Self-Perception of Well-Being In Prison Inmates" has been approved by the Faculty of Nursing Ethics Committee, University of Alberta on June 7, 1990. I am now awaiting approval from the Correctional Service of Canada. I will be using the TES in order to capture the more multi-dimensional nature of time perception.

Please send me written documentation that gives me permission to use the Time Experience Scales. Please send it to my home address given in the letter heading. I would appreciate it very much. I look forward to hearing from you.

Respectfully,
Reta Bulani
Reta Bulani R.N., BScN
Graduate Student
Faculty of Nursing
University of Alberta

YOU HAVE MY APPROVAL — S. Sanders 6/20/90

UNIVERSITY OF ALBERTA

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Reta G. Bulani

Reta Gale Bulani
1892 - 91 Street
North Battleford, Saskatchewan
S9A 0A7

Date: July 22, 1991

UNIVERSITY OF ALBERTA

FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled THE RELATIONSHIP BETWEEN SUBJECTIVE TIME PERCEPTION AND SUBJECTIVE WELL-BEING PERCEPTION IN PRISON INMATES submitted by Reta Gale Bulani in partial fulfilment of the requirement for the degree of Master of Nursing.

R. A. Day
Dr. R. Day
Supervisor

Dr. T. Davis

E Lechelt
Dr. E. Lechelt

June 20, 1991

DEDICATION

"... O Lord, you are our Father. We are the clay, you are the potter; We are all the work of your hand." (Isiah 64:8).

This project was generously funded by:
The Alberta Association of Registered Nurses
The Alberta Foundation for Nursing Research

ABSTRACT

The purpose of the study was to investigate the relationship between time and well-being perceptions. English-speaking inmates (n = 85) were surveyed from one federal penitentiary using interviewer-administered questionnaires. The Psychological General Well-Being Schedule (Dupuy, 1984) was used to measure well-being perception and consists of Anxiety, Depressed Mood, Positive Well-Being, Self Control, Vitality, General Health, and an overall index of general well-being. The Time Experience Scales (TES) (Sanders, 1986) measured Meaning, Fast Tempo, Slow Tempo, Attention to Death, Future Orientation and Past Orientation. The Consciousness Index (Bentov, 1977), was calculated using the mean of the production of 40 seconds taken 3 times. Biographical data was also collected.

A variety of statistical procedures were employed, and the TES was orthogonally transformed for the summary regressions. There were reciprocal relationships between general well-being and Meaning and Past Orientation, but the relationship directions were stronger when well-being was the dependent variable. Meaning and Past Orientation explained 26.57% and 6.84% of the variance respectively in well-being. Fast Tempo, Slow Tempo, Future Orientation, and the Consciousness Index did not affect general well-being perception. When the time variables were analysed together, Meaning explained 26.57%, Past Orientation explained 7.97%, and Attention to Death explained 3.57% of the variance in well-being, while the biographical variables had no effect. Inmates in disassociation and segregation (D&S) perceived lower levels of well-being and more Depressed Mood compared to those housed elsewhere. Housing generally explained 8.0% of the variance in well-being. Highest grade completed and education/prison work specifically affected Depressed Mood. Inmates' chances for parole affected general well-being when other variables were not controlled.

Well-being and time perception could provide initial screening for identifying high-risk inmates (eg., suicidal, depression, and self-mutilation), and a framework for interpreting inmate behavior. For example, 'trivial' concerns may be of major significance, and preoccupation with sleep, and alcohol/drug intoxication may actually be adaptive strategies to achieve more positive meanings of time and increased well-being. In addition, Meaning and Past Orientation may have implications for health promotion. The results of this exploratory study indicate the need for further research.

ACKNOWLEDGEMENTS

I would like to express my appreciation and gratitude to the many individuals who assisted in making this study possible.

To Dr. R. Day, my advisor, for her guidance and assistance, and her willingness to allow my independence by encouraging and supporting my ideas.

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To Dr. J. Reddon for doing the statistical analysis, and for his guidance concerning the reporting of the data. His professional expertise as a psychologist and statistician, his experience with inmates and prison environments, and his familiarity with the time and well-being perception literature were invaluable to his contribution to the data analysis.

To Cathy Ridenour, who painstakingly transcribed my writing to the computer. Her skill and efficiency with this process are greatly appreciated.

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To Dr. S. Sanders, who developed the Time Experience Scales, and Dr. H. Dupuy, who developed the Psychological General Well-Being Schedule, for their personal and written communication about their instruments, and for their encouragement and advice in their use.

To the Chief of Health Care at the penitentiary where the pilot study was completed, for his support and advice and for facilitating the data collection.

To the Chief of Health Care at the penitentiary where the main study was completed, who first inspired me, who encouraged, advised, and supported me throughout, and who facilitated the whole process.

To the Wardens of both penitentiaries, for their interest and support for doing the pilot and main studies.

To the Correctional Service of Canada for giving their approval to conduct my pilot and main studies in the respective penitentiaries, and for their invaluable advice. Special thanks to Joanne Severn, Coordinator, Regional Research Committee, for her support.

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To Dr. P. Thauberger who proofread my proposal and gave skilful advice for the content. His professional experience with inmates and his expertise with the research process enhanced his positive contribution.

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Special thanks must be expressed to the inmates who so freely shared their ideas and who patiently participated in the interviews.

To Claudio Montà, my beloved, whose devotion and patience enabled me to complete this study.

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CHAPTER I

INTRODUCTION

Time perception is a universal human experience (Moore, 1982). It may pass slowly or swiftly, and the meanings given to time passage, the past, present and future seem to affect the human being (Cottle, 1976; Doob, 1971; Feifel, 1957; Fraisse, 1963). Time perception offers a framework within which self-identity develops, maintains and transforms itself. It provides liberation from dominance by the immediate concrete situation and provides an alternative to impulse action (Doob, 1971). It results in self-awareness and knowledge of our selves (Cottle, 1976; Gorman & Wessman, 1977). It gives meaning to our lives (Cottle, 1976). Human virtues such as hope and patience are consequences of time perception (Cottle, 1976; Doob, 1971). Time perception results in having some control over change (Feifel, 1957; Fraisse, 1963) and thus of the future. It results in mastering the fundamental conditions of existence or adaptation (Beiser, 1987; Devereaux-Melillo, 1980; Neville, 1980). The management and organization of time appear to affect and be affected by time perception (Corbin & Strauss, 1984; Neville, Kreisberg, & Kielhofner, 1985). The social context affects time perception but the way humans perceive time also affects the type of culture or civilization maintained and developed (Boslough, 1990; Cottle, 1976; Doob, 1971; Fraisse, 1963). If humanity is the proper object of nursing, then time perception is a concept worthy of consideration for the development of nursing knowledge.

There has been much research done relating time perception to objectively-rated health conditions (Beck, 1983; Burd, Dodd, & Fisher, 1984; Tysk, 1984a, 1984b; Zeitlhofer, Saletu, Stary, & Ahmadi, 1984). It has been suggested that Time perception may be an index of human functioning, as are pulse and temperature (Tompkins, 1980). However, successful adjustment and maintenance of overall health may have more to do with *personal* views of health than how health professionals rate it (Palmore & Luikart, 1972; Tessler & Mechanic, 1978). This implies that persons who have poor objective health, as rated by health professionals, may still have a high sense of well-being; and persons who have good objective health may have a low sense of well-being (Newman, 1979). Because persons view their health status in a more global fashion and respond and react more experientially to their overall sense of well-being (Tessler & Mechanic, 1978), assessing *personal* views of well-being is important to consider for nursing care. Unfortunately, very minimal research has been done to investigate the relationship between subjective well-being perception and subjective time perception. Information about how people view their well-being and perceive time may offer a different perspective to health promotion. The way of perceiving time may be a method of preserving system integrity when person-environmental variables are altered (Beiser, 1987). Knowledge of time perception may explain why some persons remain healthier and survive longer than others (Beiser, 1987; Neville, 1980; Neville et al, 1985; Newman, 1987; Strumph, 1987), despite their objectively rated health conditions.

Unfortunately, most of the time perception research measures only single time dimensions, and measures the time perception dimension in a bi-polar manner, that is, a subject is viewed as having *either* a fast tempo *or* a slow tempo, or is oriented *either* to the past *or* to the future. If it is presupposed that persons are an integrated whole, then persons may have a high orientation to *both* the future and the past, or time may pass *both* swiftly and slowly, depending on the context. Therefore, there is a definite gap in the research when viewing time perception in a multi-dimensional manner. If it is presupposed that the goal of nursing is to promote the well being of human beings, then information on human time perception and well-being perception is important to investigate.

PROBLEM

The subjective experience of time is significant to prison inmates (Meisenhelder, 1985). Prison life is rigidly dictated by time, as in the daily routine of all activities. Inmates also spend much time waiting for occurrences such as doors within the prison to open, visits, court dates, parole hearings, and release dates. Some inmates present the following symptoms and behaviors related to well-being that are indicative of unhealthy patterns: insomnia, anxiety, frustration, depression, anger, drug/alcohol intoxication, psychosomatic complaints, and malingering. Many are heavy cigarette smokers, coffee drinkers, and drug abusers. Prison violence such as assault, self-mutilation, and property destruction often occur. However, some inmates appear to be able to 'do their own time' with seemingly little difficulty and appear to express more positive feelings and behaviors related to well-being that are indicative of more healthy patterns. Personal views of well-being, therefore, appear to be important to inmate health patterns. Given the perceived significance of time within the incarceration period, the question of whether the subjective perception of time has an effect on inmate self-perception of well-being and thus their symptoms and behaviors related to well-being, is an important issue for enquiry. If a relationship exists between the experience of time and personal views of overall well-being, this should be more easily identified in an inmate population.

PURPOSE

The purpose of the study was to investigate the relationship between subjective time perception and subjective well-being perception within a sample of medium-maximum security inmates. Time perception was measured in a multi-dimensional manner. This study also determined the relationships of some personal and environmental characteristics on inmate perceptions of time and well-being. If it is presupposed that the goal of nursing is to promote well-being, and assuming that self-perception of time appears to have such relevance to inmates and to their expressed well-being, then the information obtained from the study can contribute to the body of nursing knowledge. This information may be important to consider for nursing care in the unique setting of a penitentiary. Besides having theoretical implications in the understanding of time and well-being perceptions, building on this information through future research could potentially assist in innovations for the nursing care of all clients.

DEFINITIONS

Subjective Well-Being

Subjective well-being was conceptually defined as a self-perceived integrated positive and/or negative feeling or state about one's global life circumstances that includes bodily health, vitality, mood, coping ability, person-environment fit, and life satisfaction. Individuals respond and react to their overall sense of well-being and their notions of bodily health both affect and are affected by their sense of psychological vitality (Diener, 1984; Horley, 1984; Palmore & Luikart, 1972; Tessler & Mechanic, 1978).

Subjective well-being was operationally defined by the Psychological General Well-Being Schedule (Dupuy, 1984). This inventory measures anxiety, depressed mood, positive well-being, self-control, general health and vitality (see Appendix 1).

Subjective Time Perception

Subjective time perception was conceptually defined as the inner sensible intuitions about time that are within the experience of the individual. It is distinguished from objective time or clock time which is a neutral objective sequence of happenings external to the self and publicly verifiable. Time perception is a multidimensional concept and the attributes that are considered essential to time perception are personal experiences of succession, duration, meaning, estimation, fast tempo, slow tempo, historical past, personal past, present, personal future, historical future, span of future time orientation, span of present time orientation, span of past time orientation, temporal dominance, temporal relatedness and attention to death.

Duration And Succession

The two fundamental attributes of time perception are the perception of succession and duration. A notion of time is acquired with the perception of a relationship between succession and duration and all the other attributes of time perception are derived from the perception of these two attributes (Cottle, 1976; Doob, 1971; Fraisse, 1963; Gorman

& Wessman, 1977). Duration is defined as the interval separating one change from the next. Succession is the perception of order and implies the existence of intervals or durations between these successive steps (Fraisse, 1963).

Meaning

Humans give meaning to their perception of the succession and duration of events and thus obtain an appreciation of time. Meaning refers to what time has come to signify for the person in terms of cognition and feelings (Fraisse, 1963). It indicates how strongly time represents something positive or negative (Sanders, 1986). The attribute of meaning was cited in 12 of the theoretical sources and 9 of the empirical studies reviewed (see Appendix 2).

Estimation

Estimation is defined as the subjective perception of how much time seems to have passed for a given duration (perceived duration). By a comparison between the duration we feel and the duration we should like, we perceive a length of time as being short or long. When it can be quantified precisely or approximately by an objective standard, the duration length can be estimated (Fraisse, 1963). This attribute of time perception occurred in 15 of the theoretical sources and 50 of the empirical works reviewed (see Appendix 2).

The Speed Of The Passage Of Time (Tempo)

The speed of the passage of time (tempo) is defined as ". . . the awareness of the ongoing flow of time in personal life" (Sanders, 1986, p. 178). It was identified in 15 of the theoretical sources and 13 of the empirical works reviewed (see Appendix 2). In all the literature reviewed, tempo is interpreted as one concept, with slow and fast representing polar opposite ends. However, the work of Sanders (1986) indicates that slow tempo and fast tempo are two distinct attributes of time perception.

Time Periods

The time periods of past, present and future are three characteristics of time perception referred to in 12 of the theoretical works and 7 of the empirical works reviewed (see Appendix 2). Further analysis reveals that humans sequentially order life events into five chronological intervals with the resulting orientation to those intervals: personal past (the interval from birth to present), present (the interval in which events are happening), personal future (the interval from present to the moment of death), historical past (the interval of events prior to birth), and historical future (the interval of events after death (Cottle, 1976).

The Span Of Future, Present And Past Time Periods

The span of future, present and past time periods are perceived to have different durations depending upon what events forming the interval the attention is fixed upon and the significance of the duration (Cottle, 1976). Scholars believe that as late as the eighth century B.C., people lived mainly in a state of the present with little sense of the past or future (Boslough, 1990). With the evolution in the consciousness of history, geology, astronomy and physics, humans have extended the span of their perception of past and future. Of the literature reviewed, 10 theoretical works and 12 empirical works include the span of future orientation, and 7 theoretical works and 3 empirical works consider past extension (see Appendix 2). The span of present orientation was used in 2 of the empirical works reviewed and 7 theoretical sources.

Temporal Dominance

Temporal dominance is the main direction of perception and attention to a particular time period of past, present or future (Fitzpatrick, 1980). It involves the perceived significance of a particular time period (Cottle, 1976). Temporal dominance was considered in 11 of the theoretical works and 7 of the empirical works reviewed (see Appendix 2).

Temporal Relatedness

Temporal relatedness is the perceived relatedness between the time periods of past, present and future (Cottle, 1976). Time periods may be perceived as totally unrelated or to overlap partially or totally. The latter is identified as spatial time perception. Linear time perception refers to situations wherein the time periods are perceived to touch but not to overlap (Cottle, 1976). This attribute was discussed in 5 of the empirical works reviewed and 11 of the theoretical works (see Appendix 2).

Attention To Death

The human is unique in possessing an intellectual foreknowledge of death (Sanders, 1986). The awareness of personal death gives time its special significance to humans (Anderson-Schorr, 1983). Humans ". . . are always pursuing timelessness to avoid the triumph of time which is death" (Doob, 1971, p. 286). Two empirical works considered this attribute (see Appendix 2). Some of the theoretical works made mention of it but did not isolate it as a distinct attribute.

Time perception was operationally defined by the Time Experience Scales developed by Sanders (1986) which measures the attributes of meaning, attention to death, fast tempo, slow tempo, future orientation and past orientation (see Appendix 3); and by the Consciousness Index postulated by Bentov (1977) which measures the attribute of estimation (perceived duration).

CONCEPTUAL FRAMEWORK

In view of the diversity of literature on the topic of time perception, it was useful to develop a conceptual framework to guide this research on time perception and well-being perception. The works of Newman (1979, 1986) and Rogers (1970) greatly influenced this development, as well as the literature reviewed and personal clinical nursing experience. The conceptual framework is depicted in Figure 1. Following is a presentation of the presuppositions and assumptions upon which the conceptual framework based.

Presuppositions

1. The goal of nursing is to contribute to the attainment of increasing levels of well-being of persons, families and communities through maintaining and increasing bodily health and coping ability and actualizing person-environment fit and life satisfaction.

2. There is no boundary between person and environment.

3. Pattern and organization identify the human being and reflect innovative wholeness (Rogers, 1970).

4. The whole can be seen in the part because pattern is information that depicts the whole (Newman, 1986).

5. Time perception is a universal human experience (Moore, 1982).

Assumptions

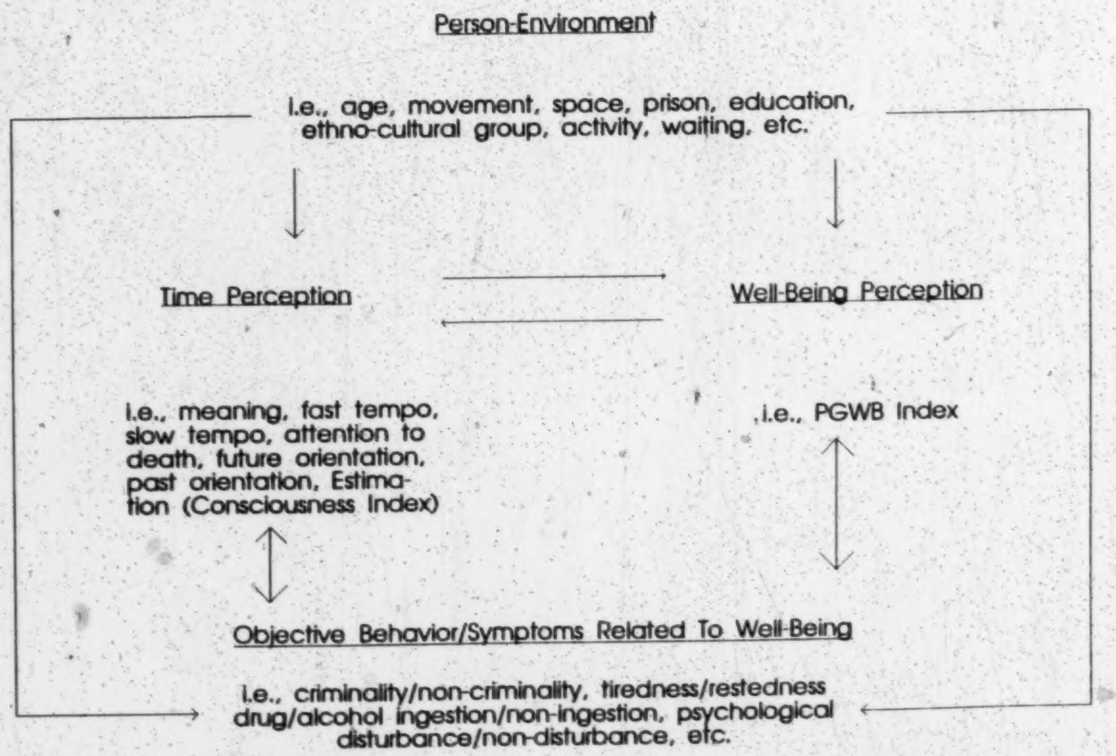
Person-Environment Assumptions

1. Person and environment are continuously exchanging matter and energy with one another and thus are an integrated whole (Rogers, 1970).

2. Person-environment consists of the biological, psychological, spiritual, socio-cultural and physical milieu

Figure-1

Conceptual Framework


Person-Environment
I.e., age, movement, space, prison, education, ethno-cultural group, activity, waiting, etc.
Time Perception
Well-Being Perception
I.e., meaning, fast tempo, slow tempo, attention to death, future orientation, past orientation, Estimation (Consciousness Index)
i.e., PGWB Index
Objective Behavior/Symptoms Related To Well-Being
I.e., criminality/non-criminality, tiredness/restedness drug/alcohol ingestion/non-ingestion, psychological disturbance/non-disturbance, etc.

as parts of an indivisible whole.

3. Persons interact or behave biologically, psychologically, socially, culturally and spiritually with their environment.

4. Differences in behavioral manifestations would more easily be identified during a peak of wave patterns and the peak rhythm periods are assumed to be crisis experiences (Rogers, 1970).

Time Perception Assumptions

1. The pattern and organization of time reflects innovative wholeness (Rogers, 1970).

2. Time perception results in self-awareness and knowledge of ourselves (Gorman & Wessman, 1977; Cottle, 1976).

3. Temporal experience is an integrating factor in the person-environment interaction (Newman, 1986; Rogers, 1970).

4. Time perception provides liberation from dominance by the immediate concrete situation and provides an alternative to impulse action (Doob, 1971).

5. Time perception results in having some control over change (Feifel, 1957; Fraisse, 1963).

6. Time perception results in mastering the fundamental conditions of existence and adaptation (Beiser, 1987; Devereaux-Melillo, 1980; Neville, 1980).

7. Time perception affects and is affected by behavior (Doob, 1971).

Well-Being Perception Assumptions

1. Persons view their health status in a more global fashion (Tessler & Mechanic, 1978).

2. Nearly everyone of adult age has some condition that would be medically termed "disease," yet few consider themselves ill (Newman, 1979).

3. Persons respond and react more experientially to their overall sense of well-being (Tessler & Mechanic, 1978).

4. Well-being perception affects and is affected by behavior.

Overview Of Conceptual Framework

The conceptual framework revolves around the general question of whether there is a relationship between time perception, well-being perception, and the objective behaviors/symptoms related to well-being. Empirical works, and assumptions based on theoretical works from the literature as well as from personal clinical nursing experience support the view there is an association between both time and well-being perception and the objective behaviors/symptoms related to well-being. Insufficient evidence exists for casual inference between these variables but these variables do appear to affect each other.

Given the self-evident fact that persons perceive and behave, and assuming that persons are in continuous interaction with their biological psychological, socio-cultural, spiritual, and physical environments, then it follows that the person-environment will influence the person's perceptions of time and well-being and the persons's objective behavior/symptoms related to well-being. Some support exists in the literature that certain biological, psychological, socio-cultural, spiritual and physical factors appear to be related to well-being perception as well as time perception. Because time perception and well-being perception both appear to be associated with the objective behaviors/symptoms related to well-being, and because both time perception and well-being perception are associated with person-environment factors, then person-environment factors are assumed to be associated with objective behavior/symptoms related to well-being.

The question still remains as to whether there is a relationship between time perception and well-being perception. Assuming that people view their health in a more global fashion, then this global view is taken to be the subjective perception of well-being status. If time perception may be a holistic indicator of health status (Newman, 1979) then time perception may be a holistic indicator of perceived well-being status. Given that differences in behavioral patterns would more easily be identified during the peak of wave patterns and assuming that because time appears to have such significance to inmates, then it follows that inmates are at a peak wave pattern so if a relationship does exist between time perception and well-being perception, this should be more easily identified in a population of inmates.

CHAPTER II

LITERATURE REVIEW

Because of the extensive amount of literature available, the review was limited to theoretical and empirical works identified by computer and manual searches. To focus on time perception, the literature review was limited to the relationship of time perception to the person-environment, the objective behavior/symptoms related to well-being, and to well-being perception in keeping with the conceptual framework. Less attention was given to well-being perception and its relationship to person-environment and objective behavior/symptoms related to well-being. To further assist in establishing boundaries, only empirical works were described. The studies are briefly summarized using the conceptual framework as a guide for the organization of the literature review, beginning with a description of the methods used to measure the time perception attribute of estimation.

Measurement Of Time Estimation

Estimation was the most frequently measured attribute of time perception in the literature reviewed. To come to terms with the different methods used for its measurement and the different ways of interpreting the results, a description follows. The production method is when the subject delimits physically the beginning and the end of a standard time interval verbalized by the investigator.

There have been different interpretations of the results of production depending upon whether subjective or objective time was selected as the standard for comparison.

If the subject marks off less than the designated time interval, the subject has shorter internal temporal units relative to clock units. This has been interpreted as a faster rate of subjective time relative to clock time, a faster internal clock, increased perceived duration, the perception of external time as passing slowly, and the judgment that more time has elapsed than has actually passed. The designated interval (i.e., subjective time) is overestimated relative to the objective units marked off (i.e., the subject thinks it is 40 seconds (40 s) when it actually only took 30 s of clock time). Likewise, the produced interval (i.e. objective time) is underestimated relative to the designated interval (i.e., subjective time).

If more than the designated interval is marked off, the converse is true. The subject has longer units of internal time relative to clock units which has been interpreted as a slower rate of subjective time to clock time, decreased perceived duration, a slower internal clock, the perception of external time as passing quickly, and the judgment that less time has elapsed than has actually passed. The designated interval (i.e., subjective time) is underestimated relative to the objective units marked off (i.e., the subject thinks it is 40 s when it actually took

60 s of clock time). Likewise, the produced interval (i.e. objective time) is overestimated relative to the designated interval (i.e., subjective time) (Doob, 1971; Feifel, 1957; Newman, 1976; Newman & Gaudiano, 1984; Tysk, 1984a). The method of production is preferred over other methods since it gives more accurate judgments with less scattering of scores and eliminates the tendency toward verbal rounding of the interval judged (Clausen, 1950).

The verbal estimation method is when the investigator presents an interval of time and the subject indicates verbally the duration of the interval. There have been different interpretations of the results of verbal estimation, depending upon whether subjective or objective time was selected as the standard for comparison. A longer verbally estimated interval is consistent with verbally overestimating the designated interval (i.e., 40 s), the designated time interval (i.e., 40 s) being underestimated relative to the verbal estimate, the judgment that more time has elapsed than has actually passed, a faster internal clock, a faster rate of subjective time, increased perceived duration, and the perception of external time as passing slowly. The converse interpretation applies to a shorter estimated interval. The methods of verbal estimation and production can be regarded as measuring the same function inversely, since they have a high negative correlation (Clausen, 1950; Doob, 1971; Hornstein & Rotter, 1969).

The method of reproduction involves the subject reproducing a standard time interval after the standard is produced by the investigator. The interpretation of the results is similar to the method of production but the results are not interchangeable because it is measuring a different underlying function. The results are less consistent and less reliable than those obtained by production and verbal estimation (Clausen, 1950; Hornstein & Rotter, 1969).

The metronome method involves the subject tapping or counting at a second's rate the standard interval verbally stated by the investigator. A faster rate of tapping/counting per minute is depicted as having shorter units of internal time relative to clock units. This is interpreted as a faster rate of subjective time relative to objective time and the perception of external time as passing slowly. Time has been either overestimated or underestimated, depending upon the standard used for comparison. The converse is true with a slower rate of tapping/counting (Baddley, 1966; Hoagland, 1958; Tysk, 1984a). Scores of the Time Metaphor Test are significantly correlated with a tapping test method asserting validity for measuring the same construct (Krus & Fletcher, 1986).

The method of limits involves the subject estimating a physically presented interval of time as being "more than" or "less than" a standard interval. It is interpreted similarly to the method of verbal estimation (Goldstone, Boardman & Lhamon, 1958).

Time Perception And Person-Environment

Newman (1972), using a within-subjects experimental design, did not find a statistically significant relationship between movement (steps per minute on a treadmill) and the production of 40 s in a healthy sample of males (n = 52) aged 18 to 30 years. The intra-group variation, preferred rate of walking and conscious compensation were reported as possibly accounting for the fact that no differences were found.

Two studies with a within-subjects experimental design did find statistically significant relationships between movement (steps per minute) and the production of 40 s in healthy samples of predominately female (n = 90) and predominantly male (n = 64) subjects aged 18 to 45 years. Decreased walking cadence relative to preferred walking cadence induced by a treadmill or by joint immobilization were significantly related to producing longer estimates of the time interval relative to clock time, and increased walking cadence (faster movement) was significantly related to shorter estimates. The interpretations were that with decreased movement and the production of a longer time interval, there was a tendency to underestimate objective time, to have a slower rate of subjective time, to have longer units of internal time as compared with clock units, to have decreased perceived duration and to perceive external time as passing quickly. The opposite interpretations were given with a faster cadence (Newman, 1976; Tompkins, 1980).

Statistically significant relationships were found between movement (steps per minute) and the production of 40 s in two correlational studies (Engle, 1984, 1986) on samples of elderly white females (n = 114). The faster the cadence the shorter the estimates relative to clock time and the slower the cadence the longer the estimates tended to be.

Using a quasi-experimental factorial design with 24 orthopaedic patients (71% male) aged 15 to 65 years, Stewart (1986) found statistically significant relationships between movement (immobility/mobility), space (private/semiprivate/public rooms) and time perception (production of 15 s). Immobility, social isolation and the interaction of these two variables were significantly related to a trend of producing longer lengths of the standard relative to clock time and increased reports of perceptual distortions and non-compliant behavior. This trend for increased underestimation of elapsed time was interpreted as the perception of external time passing quickly and a slower rate of subjective time, however, all mean times for all groups were significantly less than the standard. Stewart identified sampling problems, the small n/cell, and the difficulty with controlling environmental variables as limitations.

In a correlational study, Collett (1974) found a statistically significant relationship between space and time estimation (production of 40 s) in a sample (n = 110) aged 18 to 30 years and no sex difference. A longer produced time interval was associated with the perception of less personal space. In phenomenological experiments (Delong, 1981), a statistically significant relationship was found in that the experience of temporal duration (verbal estimation of 1 min - 3.5 hr) is compressed relative to the clock in the same proportion as scale model environments being observed are compressed relative to the full-sized environment (n = 9 - 166).

Levitt and Leventhal (1978) conducted an experiment on undergraduates to investigate the effects of density (high/low) and intrusion of personal space (far/close) and noise on the estimation of time (verbal estimation). Males (n = 96) were more accurate than females (n = 96) on both low density/far and low density/close. The males' estimations of elapsed time were more accurate in noise in high density and low density/close and were more accurate in quiet in low density/far. In quiet, males verbally reported that time was moving more slowly in low density/far than in high density or low density/close. Herman, Norton and Roth (1983) found statistically significant relationships between time estimation (verbal) and distance perception in their experiments (n = 48).

Lechelt (1976) conducted an experiment (n = 28) to investigate the estimation of time intervals (reproduction, verbal estimation of 50 & 75 s) on conditions of differential perceptual (psychological) alteration (visual rivalries) keeping all physical characteristics of the stimuli constant. Statistically significant relationships were found in that the greater the number of visual rivalries experienced, the more the tendency to consider a standard interval to be shorter in duration than when experiencing fewer rivalries.

A statistically significant relationship was found in that males aged 17 to 37 years (n = 42) who rated themselves as having higher perceptual skill estimated (verbal estimation of 30 - 600 s) shorter intervals than those who rated themselves as having lower perceptual skill (Wixen, 1986). The higher the need for cognition, the more likely to estimate shorter time intervals (verbal estimation) was a statistically significant finding in (n = 44) undergraduate psychology students (Baugh & Mason, 1986).

Pupils (n = 310) high in future time orientation (Future Time Orientation Scale) and with a high belief in the value of the dependency of future goals on present activity (instrumentality) perceived any temporal distance as shorter than those who were low in these variables. The most significant determinant of perceived goal distance in time was the importance of the future goal. A very important goal was generally perceived as much closer than an unimportant goal (Gjesme, 1981). Reliability and validity information was not given about the instrument.

Mentzer and Anderson-Schorr (1986) did not find a relationship between low levels of perceived situational control over daily activity and longer productions of a time interval (production of 40 s) or lower scores of the Consciousness Index (ratio of subjective time to objective time) among (n = 40) institutionalized women aged 65 to 96 years. A longer production was equated with decreased perceived duration.

Naturalist-passive subjects (Time Metaphor Test) produced significantly longer intervals (60 - 180 s) while the dynamic-hasty were more accurate (n = 40). This suggests that naturalist-passive subjects, who preferred to conceptualize time in slow or static terms tended to have a slower rate of subjective time. The results from the Time Metaphor Test were therefore consistent with the results from the production method (Barocas, 1971). Because results obtained from the metronome method were consistent with results obtained by the Metaphor Test (Krus & Fletcher, 1986), there is more evidence for the validity of the methods.

Rappaport, Enrich and Wilson (1985) investigated the relationship between identity and temporal perspective on a sample of n = 80 male undergraduates. They concluded that groups representing higher levels of identity development tend to have more balanced temporal orientations. Both high futurity and low futurity may constitute extremes, which may be problematic. The authors stated that an ideal might involve breadth and balance of temporal orientation over all temporal zones rather than viewing high futurity as representing an ideal. The Rappaport Time Line and an extension rating scale were used to measure temporal perspective.

In two experiments, statistically significant relationships between space and time at the perceptual level were obtained. The comparative perception of two spaces on the subjects' bodies (n = 4 males) defined by successive stimulation was altered by the relationship of the temporal intervals associated with them in the tactile sense (Lechelt & Borchert, 1977). Judgments of the equivalence of two spaces on the subjects' bodies (n = 2 males, n = 2 females) were quite accurate when the temporal intervals were equal (defined by the interval of time between successive tactile stimulation). When the temporal relation denoting the space was imbalanced compared to the standard temporal relation denoting the space, judgments of the comparison separation (space) considered to be equal to the standard separation were distorted. It was concluded that spatial distortion is relative to the temporal relations of the stimulus pairs and not to the spatial relations (Lechelt, 1979).

Kuhlen and Monge (1968) conducted a correlational study on a sample of students (n = 297) and a sample from the general population (n = 239). They found no relationship between age and the speed of time passage or tempo (Time Metaphor Test; designed questionnaire). The degree of future time orientation declined with age for both sexes. It was concluded that filled time is sensed as going more rapidly by any age. It was reported that the questionnaire had face validity but further validation was necessary. It was reported that correlations were done on measures of sense of current speed of time passage from the questionnaire with other measures of time passage and the other variables studied and inferences regarding the construct validity of the direct rating seemed sound.

Strumph (1986) found some statistically significant relationships in a sample of elderly institutionalized subjects (n = 50). Respondents tended to experience time now as passing fairly to extremely rapidly, but compared to 10 years ago, the tendency was for time to pass about the same or more slowly (Time Metaphor Test). The majority tended to think more about the past than the future (Time Reference Inventory). It was inferred that those in residential living were confronting their vulnerability with an awareness of a changing relationship to time. Those in intermediate care were struggling with the impact of institutionalization and growing dependency and those in the skilled unit were recognizing and accepting the end of life (Time Opinion Survey). Statistical manipulation of the data yielded no significant relationships among items on the three measures of time experience suggesting that they were measuring different attributes. However, coefficients were not cited for evidence for their reliability and validity.

Joubert found some statistically significant relationships in two correlational studies. There was a tendency for the perception of time passing more rapidly for healthy men and women undergraduates at the present age than when they were one-half or one-quarter their present age. There was a tendency for females (n = 50) to experience time as passing significantly more rapidly than males (n = 24) at one-quarter their present age. Time perception did not correlate significantly with death anxiety (1983). When men and women (n = 51) compared their present state with that when they were one-half and one-quarter their present age, there was a tendency to perceive time as passing more slowly when they were younger (1984).

Newman (1982) found no relationship between estimation (production of 40 s) in terms of the Consciousness Index and age using a correlational design in a sample (n = 85) of 60 to 88 year olds (80% female). The possible effect of sex and hemispheric lateralization, and the limited age range were cited as possible confounding variables.

Feifel (1957) compared a group of older white institutionalized males with physical illness (n = 40; mean age = 67) to a group of healthy younger non-institutionalized males (n = 36; mean age = 24) in the production estimation of time intervals (30, 60, 180, & 300 s). The older group significantly produced shorter time units than the standard (i.e., clock time passing slower, subjective time faster) compared to the younger group. Subjects who experienced the future as negative tended to produce significantly shorter time intervals than those having a more positive outlook. It was postulated that what life seems to hold forth for the individual may affect the changed evaluation of time passage. These results are questionable because institutionalization and physical illness were not controlled.

Westman (1987) conducted a correlational study on kindergarten, children, adolescents, college students, college professors and mentally ill patients (n = 1788) to investigate the estimation of time intervals (verbal estimation of 30 s to 4 years). The statistically significant results follow. Children tended to demonstrate an abstract concept of time by second grade when they knew the clock or calendar (i.e., discrimination between real and apparent time). The apparent duration of pleasant events tended to be shorter and unpleasant events longer than real time duration. Development of clearly perceptible durations tended to proceed from short to long. By sixth grade, the year and multiples thereof tended to be understood and predictable durations tended to be rated consistently with their clock or calendar durations. Less perceptible or predictable durations tended to be perceived later than similar durations that were clearly perceptible and predictable. "Month" tended to be learned last and tended to not be rated consistently according to its calendar duration until adulthood. "Right away," "soon," and "in a while" (less predictable) tended to be learned two to four years later than were clearly perceptible and predictable durations. It was concluded that socializing experiences and growth and development are important to time perception.

Smith (1975) conducted a laboratory experiment on healthy subjects at rest (n = 180) aged 18 to 35 years. A statistically significantly relationship was found in that the length of the interval produced (40 s) tended to be shorter when subjected to continuous auditory information compared to when under the condition of relative quietness. However, Smith (1984) failed to find a statistically significant difference in the production of 40 s for subjects aged 18 to 35 years at rest (n = 120) in a filled auditory environment compared to a quiet one. The way of assigning meaning to the ambient environment by the subjects was cited as a possible confounding variable.

Delay and Richardson (1981) conducted an experiment and found that males (n = 7) tended to produce shorter intervals of time (15 s) in the dark than the females (n = 7), nearly identical productions as the females under low illumination and longer productions than the females under high illumination.

Baddely (1966) conducted a one-group pre-test post-test field study and found that there was a tendency for males (n = 20) to count significantly more slowly per minute (i.e., longer units of internal time relative to clock units) when their oral temperature was reduced by immersion into cold sea water. An attempt was made to control for anxiety. Lack of control over environmental variables was cited as a limitation. Hoagland (1958) found that when body temperature was increased artificially with diathermy, there was a tendency for increased frequency of tapping suggesting that shorter units of time were perceived relative to clock units. Ethically, the diathermy treatment is questionable.

Pfaff (1968) investigated the normal circadian variations in body temperature (n = 10) on the verbal estimation of time intervals (10, 20 & 30 s) and the production estimation of intervals (15, 30 & 60 s). Higher body temperature correlated significantly with shorter productions of intervals and with longer verbal estimates. Shorter productions and longer verbal estimates are consistent with each other and were interpreted as having a faster internal clock. Collett (1974) did not find a statistically significant relationship that lower circadian body temperature is associated with a longer production of 40 s or vice versa.

Yarcheski and Mahon (1986) found that adolescents from single-parent (father-absent) families (n = 33) tended to have significantly shorter future time spans (Future Time Perspective Inventory) than adolescents from two-parent families (n = 33). It was reported that Heimberg stated that the reliability of the instrument was indicated by a coefficient alpha of .86 in samples of college students and enlisted army men. Heimberg achieved a coefficient alpha of .84 on a sample of tenth graders. Construct validation was investigated by Heimberg and positive correlations were found between future time perspective and internal locus of control (r = .50) and between future time perspective and semantic differential ratings using the concepts "the future" and "me" and semantic differential ratings of the understandability of "other people." Also it was reported that Heimberg found significant negative correlations between future time perspective and anxiety (r = -.53) and anomie (r = -.43).

Mean time estimations (verbal) tended to be significantly longer under "interactive" conditions than under "alone" conditions of social interactions and under "unexpected" conditions that "expected" waiting conditions (n = 72). It was concluded that social cues may influence time estimation (Ahmadi, 1984).

Devereaux-Melillo (1980) studied institutionalized elderly subjects (n = 30) to investigate the relationship of informal activity involvement and tempo (Time Metaphor Test), verbal estimation (20 & 50 s), and attitudes and motives related to time (Time Opinion Survey). Individuals less involved with informal activity tended to perceive time as passing as swiftly as those who are more involved, and there were no differences in the lengths of estimations of a time interval between the two groups. Results failed to correlate involvement with informal activity with a perceived rate of time passing swiftly.

Landau (1975) conducted a quasi-experimental study and found that the span of future time was significantly shorter in institutionalized young males (n = 133) compared to non-institutionalized young males (n = 38) when controlled for criminality.

In a qualitative phenomenological study (n = 73), Meisenhelder (1985) found that prison alters experienced time and produces a feeling of waiting and a sense of time as a burden. The constant anticipation of the passage of time merely seems to slow it down and lack of change in the environment contributes to this. The perceived burden of prison time results from the meaningless repetitions of prison routine. Prison time is viewed that it must be made to pass rather than flowing effortlessly. Night and sleep become extremely significant times for inmates because only in sleep is it possible to be free from the burden of time. There is no sensed freedom of movement when confined to a limited space. Prison time is viewed as futureless. The use of reverie (fantasy, dreams) is a way of adjusting to and even resisting the nature of prison time.

Aschoff (1985) studied subjects aged 18 to 44 years (n = 42) under conditions of prolonged temporal isolation. The mean interval of one-hour estimates (production) within a subjective day was significantly positively correlated with the direction of wakefulness and with the circadian cycle.

Monk and Moline (1988) studied middle aged and elderly subjects (n = 10) under conditions of temporal isolation to investigate the effects on subjective day/night cycle lengths. Subjective day lengths and circadian temperature cycle periods were significantly longer when all temporal constraints were removed and subjects were able to choose their own bed and meal times than when under habitual routines. There was a significant improvement in overall day time subjective alertness while under the free running conditions compared to the habitual routine condition with no significant increase in the actual amount of sleep. It was suggested that change in the functioning of the circadian system itself may be a factor in subjective alertness. Under the habitual routine condition, increased subjective alertness corresponded to the late morning for someone on a normal diurnal schedule, and there was a slight dip in alertness at about three o'clock p.m. for most diurnal routines. This dip in alertness had not been observed in younger subjects and it was suggested that there may be an increasing tendency toward biphasic alertness/sleepiness in the middle aged and elderly.

Beiser (1987) conducted a longitudinal study of Southeast Asian refugees (n = 1169) and a group of mostly Caucasian people living in Vancouver, B.C. (n = 319) to investigate temporal dominance and relatedness perceptions (Cottle's Circles' Test). Chinese refugees were significantly more likely to endorse an atomistic (spatial) pattern than the non-Chinese refugees (Vietnamese, Laotians) who were more likely to perceive continuity between past, present and future (linear). Non-Chinese refugees were more likely to endorse the spatial pattern than Vancouver residents. Age, sex and education did not affect the choices of time relatedness patterns in either sample. Refugees were more likely to have a future perspective with optimism and hope whereas Vancouverites were more evenly distributed among the categories. Almost twice as many Vancouverites as refugees endorsed the nostalgia pattern. Older refugees were more likely to chose nostalgia than younger refugees. Younger refugees were more likely to endorse optimism than elderly refugees. This trend did not receive statistical significance among Vancouverites. When interviewed two years later, 80% of the refugees still chose an atomistic time perspective. Asian cultures are described as holding to a more integrated view of time emphasizing the past more and preoccupation with the future less than North Americans. This suggests that situational variables influence time orientations. The validity of the instrument in cross-cultural samples is questioned.

Brink (1983) conducted a study on the Afaha Obong people who speak Annang and live in Cross River State, Nigeria (n = 28). Time orientation was measured by the Values Orientations instrument developed by Kluckhohn, which was translated by interpreters. Evidence for reliability and validity were given. The present was significantly preferred to the future, and both were preferred to the past.

Temporal experience has been related to a wide variety of person-environment variables in the literature, but analysis of it indicates that terminology, methodology and comparability are complex. The various conceptual and operational definitions of time perception, the different attributes measured, the differences in measurement techniques, and the different interpretations compound the difficulty. Despite this, there does seem to be some support from the idea that the subjective perception of time is related to person-environment variables. Time perception may be a method of preserving system integrity when person-environment variables are altered (Tompkins, 1980).

Time Perception And Objective Behavior/Symptoms

In two correlational studies that did not control for institutionalization, a statistically significant relationship was found in that delinquent boys (n = 26) and adult male criminals (n = 104) tended to have shorter future time spans than non-delinquent (n = 26) and non-criminal adults (n = 63). Each study used a different method of measuring future time span (LeShan Method, The Wallace Temporal Perspective Technique). Some evidence for construct validity was given for Wallace's Method by citing that significant differences on time perspective scores were found in other studies. There was no evidence given for the reliability and validity of the LeShan Method (Barndt & Johnson, 1955; Morris & Zingle, 1977).

A quasi-experimental study that controlled for institutionalization (Landau, 1975) indicated that the span of future time of male delinquents (n = 103) was significantly shorter than that of non-delinquent males (n = 68). Siegman (1961) also controlled for institutionalization. Young institutionalized male criminals (n = 30) had a significantly shorter future time span and obtained significantly lower time estimation scores (5, 15, 25 s) than institutionalized young non-criminals (n = 22). The shorter the span of future time, the significantly shorter the estimated intervals tended to be. It was suggested that criminals perceive time as passing more slowly which in turn may be responsible for an excess need of stimulation which may be related to deviant behavior. It was not clear as to whether production or verbal estimation was used. Both studies used methods similar to the Wallace Temporal Perspective Technique.

In a qualitative phenomenological study (n = 125), Persson (1981) criticized the popular views that criminals live for the moment without planning for the future. It was argued that because of the nature of the criminal world, they are forced to make fast decisions vital for their future. "Hanging around" parks and bars etc. is necessary for them to take advantage of opportunities that suddenly arise. Behaviors such as spending money now are realistic considering that in the future they may be in prison and therefore not able to reap its benefits.

Results from two correlational studies (n = 60, n = 53) involving psychology students indicated that high social interest was significantly related to a basically healthy and constructive orientation to past, present and future and there was a tendency to place more emphasis upon and be more confident of the future than people with low social interest. Lack of social interest was related to negative feelings about one's personal past. Cottle's Circles' Test was used in the first study, and the Time Competence Scale of the Personal Orientation Inventory was used in the second study to measure relative emphasis upon past, present and future (Crandall & Reimanis, 1976).

In two experiments, Smith found that healthy subjects aged 18 to 35 years who were confined to bed (n = 120) rated their time as passing significantly faster when rested and slower when tired (1979). At the end of 150 min of bed confinement, a produced time interval of 40 s (production) was significantly longer for subjects perceiving themselves as rested than for subjects perceiving themselves as tired (1984).

Statistically significant differences were not found in future time perspective (Heimberg Future Time Perspective Inventory) between adolescents with cystic fibrosis (n = 30) and (n = 30) healthy adolescents. A coefficient alpha of .75 was reported for the healthy adolescents and .90 for the adolescents with cystic fibrosis, providing some evidence for internal consistency reliability of the instrument in the samples (Yarcheski, Mahon, Kraynyak-Luise, & Baker, 1987).

Goldstone, Boardman and Lhamon (1958) conducted an experiment on medical students (n = 90) and found a significant decrease in the clock-measured value of the apparent second (methods of limits) with the ingestion of dextro-amphetamine (i.e., overestimation, external time dragging) and a significant increase in the clock measured value of the apparent second with the ingestion of quinal barbitone (i.e., underestimation, external time flying). Hicks, Gualtieri, Mayo, and Perez-Reyes (1984) conducted an experiment on 23 to 32 year old males (n = 4) and found that smoking marijuana significantly speeded the subjective time rate relative to clock time and there was a tendency for the perception of time passing more slowly (production of 10 - 45 s). Marijuana appears to have stimulant-like effects on time judgment in contrast to its sedative-like effects in most other cognitive and performance tests. It was speculated that marijuana caused subjects to be focused on internal events more than external and thus increased the focus on time.

Hyperactive children (n = 25) made significantly larger errors of estimation and produced longer intervals (7 - 60 s) than normal children (n = 75) aged eight to 12 years in a quasi-experimental study. Sex and medication use were not controlled and could have influenced the results (Cappella, Gentile, & Juliano, 1977). Learning disabled children (n = 72) tended not to estimate time (Functional Time Estimate Test) as accurately as (n = 266) controls (Burd, Dodd, & Fisher, 1984).

A statistically significant relationship was found in that female hyperthyroid patients (n = 30) tended to produce shorter time intervals than (n = 30) controls (10, 20 40 s) and had a higher tapping rate (Metronome). After successful therapy, these difference disappeared (Zeitlhofer, Saletu, Stary, & Ahmadi, 1984).

In a study (Etou, Sakata, Fujimoto, Kurata, Terada, Fukagawa, Ookuma, & Miller, 1989), obese females (n = 13), were compared to females of normal weight (n = 13) aged 23 to 49 years, regarding the production (5, 10, 15 s) and reproduction (1, 2, 3, s) of time intervals. The obese tended to underestimate (i.e., produce longer intervals) by almost 45% each which was statistically significant compared to the controls. A significant difference between the groups was not found using the method of reproduction.

Controls (n = 24) differed significantly from alcoholics (n = 35) in the tendency for greater future extension, whereas alcoholics tended to have shorter future extension. No significant differences were found with past extension. Alcoholics differed significantly from controls in selecting more positive items as referring to the past and selected fewer positive items, more negative items and fewer neutral items with regard to present. Significant differences were not found in the number of positive or negative items selected as referring to the future (Time Reference Inventory). Fitzpatrick (1980) stated that the reliability and validity of the instrument had been assessed and was found to be generally high in a series of studies. The validity of the findings is highly questionable due to possible intervening variables of sex, hospitalization, medication use, and sample selection (Roos & Albers, 1965).

Watts and Sharrock (1984) studied the relationship between fear and time estimation (verbal, 45 s). A statistically significant relationship was found in that spider-phobic subjects (n = 35) gave longer estimates of the time interval than the non-phobic (n = 18). The phobics were significantly more variable in time estimation.

Beck (1983) conducted a study on women in labor (n = 60). The verbal estimations of 40 s tended to be significantly shorter for women in active labor compared to early labor. The medicated group estimated significantly shorter verbal estimates than the non-medicated. All parturients' verbal estimations were significantly longer than 40 s during both phases of labor. Beck stated that using Pearson product moment correlations, Isenberg reported a significant relationship between the Speed to Time Passing Scale and the method of verbal estimation providing some evidence of validity. However, significant differences between the groups were not obtained using the Speed to Time Passing Scale in this study. The data analysis showed that the groups differed initially on many factors, thus detracting from the results of the correlational study. Keller (1980) did not obtain significant differences in future, past, and present extension (Roo's Reference Inventory) for males (n = 17) and females (n = 30) before and after the delivery of a child.

Compared with normals (n = 30) and moderately disturbed (n = 45), the severely psychologically disturbed (n = 45) tended to have a significantly shorter future time span (Wallace's Technique). The possible confounding variables of hospitalization, medication use, and experimenter bias detract from the results. Intercorrelations of two measures in the instrument used showed highly significant relationships (rphis = .24) providing some evidence for validity of the instrument in the samples (Shybut, 1968).

The verbal estimation of 'long' time intervals (hours) was statistically not as accurate relative to clock time in schizophrenics (n = 20) compared to non-psychotics (n = 20). Medication use and experimenter bias were not controlled (Rabin, 1957). Longitudinal case studies of healthy controls (n = 5) and patients with schizophrenia (n = 9) were investigated over a one to two year period. Controls exhibited moderate variability in the production of intervals (10 - 30 s) and tended to over or underestimate slightly but not drastically, whereas schizophrenics were more variable in their productions and deviated more from the correct interval. Chronic schizophrenics tended to overestimate time (i.e., shorter intervals) but a noticeable correlation was not found to the degree of clinical disturbance (Tysk, 1984b).

There were no differences in verbal time estimation (5 s - 30 min), and the production of an interval (30 s) between depressed patients (n = 23) and controls (n = 23). Only psychomotor retardation was significantly correlated with longer verbal estimates and shorter productions of the time intervals. It was concluded that retarded subjects tended to have a faster rate of subjective time and perceive external time as passing slower than controls (Kitamura & Kumar, 1983). In three case studies of subjects with endogenous depression, tentative findings indicated a tendency to producing shorter time intervals (30, 120 s) and a correlation between retardedness and the tendency to produce shorter time intervals. The results are interpreted with caution due to the small sample size (Richter & Benzenhofer, 1985).

Newman and Gaudiano (1984) found a statistically significant relationship in that ambulatory females over age 65 (n = 68) who were depressed tended to produce a longer 40 s time interval than those who were not depressed. It was postulated that depression masks the relationship between age and time estimation whereby with age there is a shorter production of a time interval. Newman suggested that the Consciousness Index may be reflective of well-being regardless of age.

Tysk (1984a) found that those with major depression with melancholia and bipolar depression (n = 56) had a tendency to produce significantly longer time intervals (10 to 30 s), had a significantly slower rate of tapping (metronome), and verbally estimated significantly shorter time intervals (7.5 s to 10 min) compared to the control group (n = 60). The estimation of longer intervals did not yield statistically significant differences between the two groups suggesting that the estimation of shorter time intervals was more discriminative. The melancholic type of depressives were clearly associated with a tendency to underestimate or produce longer time estimates of short time intervals, and have a slower rate of tapping and the manic disordered tended to produce shorter time estimates and have a faster rate of tapping. The effect of medication was not controlled.

In a longitudinal study of cases (n = 6) with major affective disorder, time estimations varied with changes in clinical states in five of the patients. The produced intervals were best correlated with ratings in most cases compared to verbal estimation of time intervals from 7.5 to 27.5 s (Tysk, 1985).

A between-subjects experiment was conducted on a sample of 91 male and female introductory psychology class students (Hawkins, French, Crawford, & Enzle, 1988). Temporary depressed, neutral and elated states were induced to which the experimenters were blind. It was stated that the internal validity of this method had been very high. It can be questioned, however, whether induced depression would give similar results with people who are actually diagnosed with clinical depression. Subjects then performed a sorting card task for either 4 min or 13 min. Subjects were asked how much time had objectively passed, and how quickly or slowly they thought the time passed. There were not significant differences in the objective time estimates between the depressed, neutral and elated states. Subjects who experienced the depressed affect significantly judged time subjectively to have passed more slowly (M = 5.35) than the subjects in elated (M = 6.46) and neutral (M = 6.71) affect conditions with no significant differences between the latter two conditions. The correlation between subjective and objective judgment of time scores was negligible (r = -.10). Subjects in the depressed affect condition enjoyed sorting the cards significantly less than subjects in the other two conditions with the latter two conditions not differing significantly. Subjective speed of time passage correlated positively with both enjoyment ratings (r = .61) and with positivity of affect (r = .38) at the .01 level of significance.

Beiser (1987) found that atomistic (spatial) Southeast Asian refugees achieved significantly lower depression scores than the continuity or projection groups (temporal relatedness), early in the resettlement period in Canada (time 1) and two years later (time 2). Almost twice as many Vancouverites as refugees endorsed the nostalgia pattern. Refugees (n = 1169) were more likely to have a future perspective with optimism and hope whereas Vancouverites were more evenly distributed over the categories. It was suggested that splitting off time spheres and not allowing the past to obtrude in the consciousness may be one way to protect mental health and may be used as a defense against anxiety. Temporal relatedness and depression were not related among the Vancouver group (n = 319). Refugees displaying a pattern of nostalgia (i.e., past looms over present and future) had significantly higher depression scores than all others at time 1. At time 2, this trend failed to reach statistical significant (temporal dominance). Those Vancouverites displaying a pattern of nostalgia had statistically significantly higher depression scores (i.e., poorer mental health) than those displaying other time dominance patterns. There was a statistically significant reduction in depression scores (i.e., better mental health) between time 1 and time 2 in the refugees. The refugees who switched from an "other" to an "atomistic" orientation tended to experience a greater reduction in depression over time (i.e., to achieve better mental health) although not statistically significant. Changes in time dominance were statistically significantly related to changes in depression in the refugees in that those who shifted from any other orientation into a pattern of nostalgia reported less reduction in their depression scores (i.e., poorer mental health) than any other group. There were no statistically significant interactions between age and time relatedness and dominance patterns relating to depression scores. Beiser suggested that changes in temporal dominance and relatedness patterns may be an adaptive strategy under difficult circumstances, and ways of protecting mental health. Culture is a possible confounding variable affecting the results.

Temporal experience has been related to a wide variety of variables concerning behavior and symptoms, but analysis indicates that terminology, methodology, and comparability are complex. The various conceptual and operational definitions of time perception, the different attributes measured, the differences in measurement techniques, and the different interpretations compound the difficulty. The sample sizes were small in many of the studies. Despite this, there does seem to be some support that the subjective perception of time is related to the displayed behaviors and symptoms. Time-sense measurements may provide a sensitive method for demonstrating changed mental functioning even prior to subjective awareness (Goldstone et al., 1958). Successful adjustment and maintenance of well-being may be related to changing time perceptions. Knowledge of time perception may explain why some persons remain healthier and survive longer than others (Beiser, 1987; Neville, 1980; Neville et al, 1985; Newman, 1987; Strumph, 1987).

Time Perception And Well-Being Perception

Baum, Boxley and Sokolowski (1984) found a statistically significant relationship in that those Caucasian, English-speaking, United States born elders (n = 296) aged 62 to 94 years who perceived time as moving quickly tended to be healthier emotionally than their counterparts who subjectively saw time as slow. A psychological well-being instrument was used to measure somatic complaints, psychological depression, locus of control, purpose in life and perception of oneself as "old/young." It was reported that the instrument was reliable and valid, however evidence was not given. Subjects were asked how rapidly time seems to pass for them now. Those who perceived time as moving faster than before perceived themselves significantly as "younger" than their chronological age and conversely. There were no sex differences. Maintaining a sense of purpose in life was significantly related to time moving swiftly and conversely. Greater perceived control was significantly related to a sped up sense of time and conversely. Somatic complaints were not significantly related to how the flow of time was experienced. There were no differences between institutional and community groups in the relationships just described. Those who were more actively involved in group organizations tended to perceive time as moving significantly faster compared to institutionalized subjects who tended to experience time as moving slower than before. Time tended to move significantly slower for institutionalized elders and for inactive community elders. It was suggested that time does not speed up with age. Gender, socio-economic status, and education may have affected the results.

A study (Nojima, Oda, Nishii, Fukui, Seo, Akiyoshi, 1987) investigated hospitalized patients (n = 38) and hospital employees (n = 23) aged 25 to 66 years in Japan. Subjects completed a self-evaluation of the degree of limitations perceived in the activities of daily living (SESA) and a health scale for measuring their perceived level of health. It was reported that the reliability and content validity of the SESA was based on extensive use of it to over 7,000 patients in another study and the health scale had been used in persons with epilepsy but statistical evidence was not provided. The production of a time interval (40 s) was calculated using the Consciousness Index. The inpatients had a statistically significantly higher Consciousness Index than the employees (i.e., shorter intervals). The employees had statistically higher scores on the SESA than the inpatients suggesting that employees had less difficulty with the activities of daily living compared to the inpatients. A statistically significant difference between the two groups was not found on the health scale (i.e., perceived level of health).

Statistically significant differences were not found between the subgroups of inpatients according to more change in activities and less changes in activities of daily living and the Consciousness Index. The less changed subgroup of inpatients tended to have a significantly higher score on the SESA than the less changed subgroup suggesting that those inpatients who had less change in activities tended to perceive themselves as having less limitations compared to the other subgroup. A statistically significant difference was not found for the scores on the health scale between the less-changed subgroup of inpatients and the more-changed subgroup. This suggests that the amount of changes in daily living was not related to the level of perceived health status, and health status perception may encompass a broader view than just the ability to perform the activities of daily living or of being hospitalized for physical problems. Hospitalization and medication use were not controlled. Sample characteristics were not statistically analysed to control for demographic variables.

In studies previously described, ratings of happiness and excitement in living were also significantly positively correlated with sensed speed of time (Kuhlen & Monge, 1968), and happiness and satisfaction were significantly negatively correlated with past orientation, but not with future orientation (Crandall & Reimanis, 1976). It may be assumed that happiness, excitement in living, and satisfaction are aspects of subjective well-being. Kuhlen and Monge (1968) stated that happiness and excitement in living were measured by a specially devised questionnaire that had questionable validity. Happiness and satisfaction were assessed by subjects rating their answer on one question in the study by Crandall and Reimanis (1976), which had test-retest reliabilities ranging from .43 to .59.

In two separate studies previously described, Engle (1984, 1986) did not find significant relationships between self-assessment of health and the length of the production of 40 s. Engle (1984) measured self-assessment of health on a ten-rung Cantril Ladder. Reliability and validity statistics were not stated, but a reference was given. Engle (1986) measured self-assessment of health by the Sickness Impact Profile and provided evidence for reliability and validity.

There appears to be support that temporal experience may be related to the subjective perception of well-being, despite some inadequacies in the measurement of subjective health and well-being. Tempo, estimation, past, and future orientation were the attributes of time perception considered when investigating subjective health and well-being, but only in a limited number of studies. Further studies are therefore warranted. Because subjective time perception takes into account both intra-organismic and environmental variables, it may directly reflect the overall well-being of the individual (Moore, 1982) which can largely be known by the person's own perception of his/her well-being status.

Well-Being Perception And Person-Environment

Engle (1986) found a significant positive relationship between elderly female (n = 114) self-assessment of health (Sickness Impact Profile) and movement (cadence) but no significant relationship in the earlier study (1984) when measuring health with the Cantril Ladder.

Palmore and Luikart (1972) found that self-rated health was the strongest variable significantly related to life satisfaction and accounted for two-thirds or more of the explained variance in all groups analysed (n = 502) aged 45 to 69 years. Organizational activity was the strongest variable related significantly to life satisfaction after self-rated health was statistically controlled. A higher belief in internal control was significantly related to life satisfaction. Little relationship was found between education and life satisfaction but those below average income had a low positive correlation between education and life satisfaction, while those with above average income had a low negative correlation between age and life satisfaction indicating that the older middle aged tended to be slightly less satisfied than the younger middle aged. Sex was the variable least related to satisfaction.

Diener (1984) conducted an intensive investigation of the literature on subjective well-being. The majority of studies he reviewed found little differences in global happiness or satisfaction between the sexes. Blacks have usually been found to be lower on subjective well-being in the United States when factors such as age, education, income, marital status and urbanicity were controlled but the small sample sizes were cited as making the results questionable. Diener stated that the data suggest that education had an influence on subjective well-being but the effects do not appear to be strong and seem to interact with other variables such as income. Diener stated that several studies found no significant effect when other factors were controlled. Diener reported on a meta-analysis of studies that was done suggesting that the correlation between age and subjective well-being was near zero regardless of whether other variables were controlled. Another meta-analysis of studies that Diener reviewed suggested that only 2 - 4% of the variance in subjective well-being can be predicted by social context and effect sizes were larger for formal than for informal social activity. In the extensive review of studies done, Diener found support that individual demographic variables rarely account for more than a few percent of the variance in subjective well-being, and taken together probably do not account for much more than 15% of the variance. Diener suggested that the literature supports personality as having a strong influence on subjective well-being. The studies he reviewed supported that one of the strongest predictors of subjective well-being was high self-esteem. Extroversion and related constructs such a sensation-seeking and sociability were reported as covaring with subjective well-being.

In summary, it appears that person-environment variables may have some effect on well-being perception. Concept measurement problems lend difficulty in interpretation of the results (Horley, 1984).

Well-Being Perception And Objective Behavior/Symptoms

In the extensive review of the literature conducted by Diener (1984), support was found indicating that objective health had a weak but still significant relationship to subjective well-being. Self-assessment of psychological well-being (PGWB Index) statistically significantly discriminated between mental health clients and community residents (Dupuy, 1984).

Tessler and Mechanic (1978) conducted several studies and found that psychological distress was significantly correlated with perceived physical health and not associated with objective measures of physical health status based on physician judgments. The association between being judged as having a health problem and subjective health status was not significant which supports the assumption that subject reports of illness are influenced by their subjective perception of well-being. Nervousness was predictive of perceived health status even when controlling for other variables.

Palmore and Luikart (1972) found that a person's own evaluation of health status influenced life satisfaction greater than the objective status of a person's health as assessed by a physician. This implies that persons who have poor objective health may still have a high sense of well-being and persons who have a good objective health may have a low sense of well-being.

In summary, there is some support that well-being perception is related to objective behavior/symptoms. Concept measurement problems lend difficulty in interpretation of the results (Horley, 1984). It appears that successful adjustment and maintenance of well-being has more to do with a person's own perceptions of his/her status than how others rate their objective behavior or symptoms.

Evaluation Of Literature Reviewed

Based on the literature reviewed, it appears that design, sample, control, and measurement problems exist. Analysis suggests that terminology, methodology, and comparability are complex. Ambiguous meanings have blurred conceptual and operational definitions and inhibited comparisons. The different measurement techniques used compound the difficulty. The validity of the methods used for measuring time perception attributes has not always been established. There is little evidence to support that the different methods used reflect the same explanatory construct. Any findings must be limited to the method used and the interval of time worked with. Methodological issues warrant further study (Carlson & Feinberg, 1970; Hornstein & Rotter, 1969; Ruiz, Reivich, & Krauss, 1967). Although numerous studies about single time dimensions exist, minimal attention has been directed to explicating the total multidimensional structure of time perception (Smith, 1984).

Despite these obstacles, there does seem to be some support for associations between time perception and person-environment variables and objective behavior/symptoms related to well-being. Its relationship to well-being perception has had minimal attention. Because subjective time perception takes into account person-environment variables and objective behavior/symptoms related to well-being, it may reflect the overall well-being of individuals which can largely be known by their own perceptions of well being status.

RESEARCH QUESTIONS

The question remains as to whether or not there is a relationship between inmates' subjective perceptions of time and their subjective perceptions of well being.

1. What is the relationship between perceived meaning of time and perceived level of well-being?

2. What is the relationship between the perception of fast tempo and perceived level of well-being?

3. What is the relationship between the perception of slow tempo and perceived level of well-being?

4. What is the relationship between the perception of attention to death and perceived level of well-being?

5. What is the relationship between the perception of future orientation and perceived level of well-being?

6. What is the relationship between the perception of past orientation and the perceived level of well-being?

7. What is the relationship between the perceived estimation of time (perceived duration) as indicated by the Consciousness Index and perceived level of well-being?

CHAPTER III

METHODS

Introduction

The purpose of the study was to investigate the relationship between subjective time perception and subjective well-being perception within a sample of medium-maximum security inmates. The research design is described. The research consisted of a pilot study and a main study. The purpose, access procedure and results of the pilot study are described. Then the setting, subject sample, access procedure, informed consent procedure, data collection procedures, ethical considerations, and data analysis procedures are described for the main study.

Research Design

The design for the study was a correlational survey. A sample of inmates from a medium-maximum security penitentiary was surveyed by the use of an interviewer administered questionnaire and a time estimation task to gain information about time perception, and an interviewer administered questionnaire to gain information about well-being perception. An interviewer administered questionnaire was used to collect person-environment information.

Purpose Of Pilot Study

A pilot study was conducted in a federal *medium-security* male penitentiary in western Canada. The purpose was to ensure that the interview format to be utilized for data collection in the main study was equally efficacious with literate and illiterate subjects with a differing well-being status. In short, it was important to ascertain whether inmates who were illiterate and/or who had a poor well-being status were able to understand and respond to the researcher's verbal presentation of the questions and statements from the study questionnaires.

Access Procedure For Pilot Study

The access procedure was the same as for the main study, with some modifications, in order to ensure that the sample consisted of subjects who were literate and illiterate, and who had differing levels of well-being. On August 1, 1990, letters of invitation (see Appendix 4) were sent by the Chief of Health Care to 60 inmates who were randomly selected (using a table of random numbers) from the total inmate population (using the nominal role) of 475 inmates at the medium-security federal penitentiary. Three of these 60 inmates did not receive their letters because two were released and one letter was not re-routed when the inmate was transferred from population to disassociation and segregation (housing locations). Out of a total of 57 inmates who received the letter of invitation, 31 replied by August 14, 1990 (see Appendix 5). The response rate was 54.39%.

The researcher met with the health care staff to ascertain the general well-being status of the 31 subjects who replied. The researcher also met with a school teacher to ascertain the reading/writing ability of the 31 subjects who replied by objectively looking at their scores on the School and College Achievement Test (SCAT). Subjects were then randomly selected (using a table of random numbers) from those who replied until five were chosen who were considered to have a poor well-being status, and until five were chosen who had low scores on the SCAT. All 10 subjects who were selected gave their consent (see Appendix 6) to participate in the pilot study.

Sample For Pilot Study

A total of 10 subjects were chosen for the pilot study. Five of the 10 subjects chosen were regarded as having a poorer well-being status than the other inmates. One subject recently had a perforated ulcer and various psychiatric problems. One subject recently had a perforated ulcer and was soon going for surgery (vagotomy). One subject was considered to be quite anxious and to be under a lot of stress. One subject was HIV positive, diagnosed four years ago and suffering from the general symptoms of malaise, swollen glands, and diarrhoea. One subject had a severe problem with ulcers.

Five of the 10 subjects chosen were regarded as being less literate than the other inmates. The SCAT scores of these subjects included two at a grade 3 level, one at a grade 4 level, one at a grade 6 level and one at a grade 7 level. Of the 31 subjects who replied to the letter of invitation, the majority had SCAT scores at a grade 8 level or higher. Although the subjects selected received low SCAT scores, their *stated* highest grade at school completed ranged from grade 7 to 12.

Pilot Study Procedure

All subjects were interviewed in the same room located in the health care centre. The informed consent procedure was the same as that for the main study. Verbal consent was obtained on a tape recorder. One subject pulled out the cord from the tape recorder after his verbal consent was obtained to ensure that the rest of the session was not taped. To address this issue, a point was made to remove the tape after the consent was obtained for the rest of the subjects, and no further problems arose. Two subjects were investigated per day with the total data collection period being five days between August 16, 1990 and August 22, 1990. The average time for completion of the interviewing session was 1.5 hr with a range from 1.15 - 2 h. The time for completion was longer for the less literate compared to those more literate. The less literate subjects required more explanation and guidance by first ascertaining which end of the spectrum of responses their answer generally fell, after which their specific answer was identified. The more literate subjects were able to read along and quickly pick out their best answer.

Those subjects designated as having a poorer well-being were able to sit through the session and had no apparent problems making decisions. One subject displayed a lot of anxiety behavior at the beginning of the session but his anxiety level appeared to decrease with explanation and sensitivity on the part of the researcher.

Given that there was no attempt to control for drug ingestion prior to the testing period, it was decided that controlling for cigarettes and coffee consumption during the sessions was not warranted. It was found that by helping to control for anxiety during the session by giving the subjects the option of smoking or drinking coffee was more advantageous and this appeared to help some subjects to be more comfortable and relaxed for the two-hour session. The possible effects of drug ingestion before and during the testing period is a limitation of the study. It was decided that the possible effects of smoking and drinking coffee/tea *during* the testing period for the *main* study would be considered in the data analysis by recording those subjects that smoked/did not smoke, and drank coffee/tea/did not drink coffee/tea while being interviewed.

All subjects were asked for their comments and feedback about the procedures and questionnaires. Subjects often commented that they were pleased to see that nursing was taking an interest in the inmates' points of view regarding their health rather than the points of view of the staff.

The subjects felt that the experience of time was definitely significant to inmates and thus warranted being studied. It was found that the overall verbal presentation by the researcher was efficacious and the procedures undertaken were adequate. There were no changes made to the questions on the Time Experience Scales or the Psychological General Well-Being Schedule. There were come changes and additions made to the questions on the Biographical Data Questionnaire (see Appendix 10) because of input from the subjects:

1. The question, "Have you attended schools?" was deleted because Question 4 adequately supplied this information.

2. Question 6, 7, and 8 about employment were clarified with the addition of "in the past 10 years".

3. The possible responses to question 7 and 8 about employment were not mutually exclusive, so were changed accordingly.

4. The responses to question 17 were not inclusive of all possible answers, so additional responses were included.

5. Question 20 was changed to "When is your *next* parole eligibility date? (Give your best estimate)" because subjects may not have been granted parole in the past, but may be eligible to go before the Parole Board in the future.

6. Five additional questions were added because the subjects felt that these questions had a bearing on how they perceived time, and how they perceived their well-being in

relation to parole and mandatory supervision dates, and to total period of life time incarceration. The total number of questions on the Biographical Data Questionnaire was therefore changed from 20 questions to 24 questions (See Appendix 10).

Sample For Main Study

The target population for the main study was incarcerated male English-speaking subjects drawn from federal medium-maximum security inmates. The sampling frame consisted of all inmates (257) from one male medium-maximum security federal penitentiary in western Canada. Other correctional institutions were excluded due to budget and time constraints. The criteria for selection were that the subjects must be able to understand and speak English, be male, and have given their consent. Subjects were excluded if they voluntarily withdrew from the study, were transferred to another institution or were released.

Access Procedure For Main Study

All inmates, except for five, on the nominal role (n = 257) in the federal medium-maximum security penitentiary were contacted by the Chief of Health Care at the institution to invite potential subjects to participate in the study. Therefore, a total of 252 subjects were sent the Letter of Invitation (see Appendix 7). The five subjects who did not receive the letters consisted of the following: one subject who was deaf and could not speak, two subjects who were in outside custody, and two subjects who were deemed by institutional officials to be highly dangerous, unpredictable, explosive and obsessed with females. For safety and security concerns, institutional officials recommended that the latter two subjects not be contacted.

The Chief of Health Care sent the Letter of Invitation to each inmate via the institutional mail system on September 1, 1990. The letter stated briefly who was doing the study, and what the study was about, emphasizing that the inmate would be asked to verbally answer selected questions. He invited volunteer English-speaking inmates who were interested in finding out more about the study to sign the attached form (see Appendix 8) and to return it to the investigator in the self-addressed envelope provided via the institutional mail by September 14, 1990. The letter stated that this would enable the investigator to send an institutional pass to them in order to meet with them personally, explain the study in more detail, answer any questions, and ask for their consent to participate. A statement that the study was approved by the Correctional Service of Canada and the Faculty of Nursing at the University was included.

It was recognized that although some inmates cannot read or write, their participation was still desired. Because all inmates received the letter of invitation at the same time, those inmates who could not read did have ample opportunity to seek clarification from other inmates, and from correctional workers just as they do for other mail. Those inmates who did not reply were not contacted.

Although 252 Letters of Invitation were sent out, only 243 subjects received the letter because 9 subjects were released or transferred in the mean time. The total number of subjects that replied to the Letter of Invitation was 90 subjects, some of which replied after September 14, 1990.

Informed Consent Procedure For Main Study

The informed consent procedure was the same for all participants irrespective of reading and writing ability. Upon receipt of the Reply Form (See Appendix 8), the investigator scheduled a time and sent an institutional pass to permit inmate movement to the information session. It was anticipated that when the inmate came to the information session, he would or would not be accompanied by a security officer, depending on institutional requirements. The answers therefore would not be confidential. If this made the inmate feel uncomfortable, he need not take part in the study. Since all subjects who came to the information session were *not* accompanied by a security officer, this problem did not arise. The scheduled appointment conflicted with other activities for six subjects, so therefore their appointments were rescheduled.

The investigator introduced herself and asked the subject to be seated. The investigator informally explained the study, answered questions, and invited the subject to participate. If the subject agreed to participate, a tape-recorded consent was obtained. This was to ensure that an informed consent was obtained by all, including those who could not read or write.

The tape-recorded consent was obtained as follows. First, the investigator read the consent form to the subject (see Appendix 9). Then the investigator asked for questions and answered them. The subject was asked if he was willing to participate. If the subject agreed to participate, he was asked to verbally repeat after the investigator the following:

> I, ______, have had this information read to me and agree to be in the study called, "The Relationship Between Subjective Time Perception and Self-Perception of General Well-Being in Prison Inmates." I have had the opportunity to ask questions about the study and my part in it. The researcher, Reta Bulani, has answered all my questions at this time. I am aware that during this study, should the researcher become aware that there seems to be a problem with my health, she will discuss this with me, before contacting Health Care on my behalf. I have been given a copy of this consent form.

If the subject asked to have more time to think about giving his consent, then he was encouraged to go and decide at his leisure. He was asked to contact the investigator at a later date if he wished to participate. If the subject did not provide consent, then he left the information session, and the next subject on the list was contacted. If the person did consent, the data collection proceeded at that time, or another appointment was made for the data collection.

The total number of subjects that consented and preceded with the data collection was 86 subjects. However, one subject who consented and was interviewed chose not to answer several questions on each of the questionnaires measuring time perception and well-being perception. It was therefore decided to exclude the subject from the data analysis. Thus the total sample size consisted of 85 subjects, and the response rate was 35.39%

(*i.e.*, $\frac{86}{243} = \frac{x}{100}$).

Setting Of Main Study

The setting for the main study was in a federal medium-maximum security penitentiary for males in western Canada. All subjects were housed in the same-sized cells located in four different areas within the institution. Subjects housed in the population area have their own cell and are permitted free movement throughout parts of the institution and to the outside prison grounds at specified times. Subjects housed in the induction area may either have their own cell or be double bunked with someone else. They are permitted free movement throughout parts of the institution and to the outside prison grounds at specified times. Subjects housed in health care usually have their own cell and, if health and security conditions permit, are allowed free movement throughout parts of the institution and to the outside prison grounds at specified times. Subjects housed in the disassociation and segregation area may either have their own cell or be double bunked with someone else. They are not permitted movement to other parts of the institution or to the outside prison grounds. When they are required to move to other areas of the prison (i.e., health care), or for an outside appointment, they are accompanied by security officers. Disassociation and segregation inmates are locked up in their cells approximately 22 hr per day but are allowed outside into the disassociation and segregation court yard for one hour of exercise and into the program area for one hour in the evening.

Subjects housed in all areas within the institution, except disassociation and segregation, were interviewed in the same room located in the health care area. The room was approximately 4.04 m long and 3.35 m wide (13.53 m^2). The room was cluttered with filing cabinets, x-ray equipment, an x-ray table and an x-ray shield, thereby producing a condition of high density (i.e., less physical space per person). There was a table and two chairs for the subject and researcher. Lighting was provided by two, approximately 121.92 cm fluorescent light bulbs. The level of noise was moderate in that the sounds of barrier doors opening and closing, and the muffled voices from people were audible.

Because of institutional constraints, it was not possible to interview the subjects from disassociation and segregation in the health care room. Instead, they were all interviewed in one room located in the disassociation and segregation area. The room was approximately 3.61 m long and 2.24 m wide (8.09 m^2). The room was uncluttered, with only a table and two chairs for the subject and researcher, thereby producing a condition of low density (i.e., more physical space per person). Lighting was provided by four, approximately 121.92 cm fluorescent light bulbs. The level of noise was moderate in that the sounds of barrier doors opening and closing, and the muffled voices from people were audible.

It was not possible to control for space, density (i.e., amount of physical space per person), and level of illumination between the two interviewing rooms. The difference in space between the interviewing rooms used was that the room used in health care was 5.44 m^2 larger than the one used in disassociation and segregation. However, the amount of physical space per person (i.e., density) was less in the room located in health care compared to the room located in disassociation and segregation due to the number of objects in the rooms. The interviewing room in health care had a lower level of illumination compared to the room located in disassociation and segregation. The noise level in both interviewing rooms was approximately the same. The temperature was controlled by one central system, maintaining the temperature at about 22 c throughout the institution. Movement was controlled by having all subjects seated during the interviewing process.

Data Collection

Due to institutional schedules, only two subjects were investigated per day. One-half of the subjects were tested in the morning and one-half in the afternoon to control for time of day effects on time perception and well-being perception. The interviewing time varied from 1 - 2 hr, with the modal time being 1.5 hr and the mean time being 1.33 hr. The period of time to collect the data from all the subjects took approximately 46 days between September 18, 1990 and December 3, 1990. There were four days during that time when data could not be collected because the institution was locked down for security reasons.

To control for movement, all subjects were seated. Watches and clocks were removed to control for effects on time perception on the Time Estimation Task. The effects of some biographical variables were controlled by the data analysis. Other variables described in the literature, that may affect time perception (e.g., tiredness, use of drugs, psychoticism, etc.) were not controlled. To help control for anxiety during the interviewing process, the researcher offered the subject coffee/tea and allowed them to smoke if they so desired. However, the investigator did record those inmates who drank coffee/tea and/or who smoked *during* the interviewing process. This was done to allow for control of any effects during data analysis. The investigator also recorded those subjects who appeared to be, or stated themselves to be under the influence of drugs in order to control for its effects during the data analysis. To eliminate the effects of fatigue due to testing, a 10-minute rest period was scheduled between the tasks.

If the subject gave his consent, the tape was removed from the tape recorder in order to reassure the subject that the rest of the procedures were not being taped. Then his name was listed on a cross-check sheet and a code number was assigned. These code numbers were entered on the data sheets. The investigator first verbally asked the subjects the questions from the Biographical Data Form and recorded the responses (see Appendix 10). The subjects were randomly assigned to two testing schemes. Scheme A consisted of the order of testing to be the Psychological General Well-Being Schedule (see Appendix 12), 10-minute break, Time Estimation Task, Time Experience Scales (see Appendix 11). Order of testing for Scheme B was the Time Experience Scales, 10-minute break, Time Estimation Task, Psychological General Well-Being Schedule. On the first date, Scheme A was used for the subject scheduled in the morning and Scheme B was used for the subject scheduled in the afternoon. On the next day of testing, Scheme B was used for the subject scheduled in the morning and Scheme A was used for the subject scheduled in the afternoon. This schemata was alternated until all subjects were tested.

Biographical Data Questionnaire

Biographical information was collected about each subject by means of the Biographical Data Form (see Appendix 10). This information was used to describe the sample and to ascertain possible relationships with time perception and perceived well-being status. The face and content validity were determined to represent the known literature by a judge panel, that is, the thesis committee.

Administering The Biographical Data Questionnaire

The Biographical Data Questionnaire was completed at the beginning of the procedure for all subjects. Each subject was verbally asked the questions, and the investigator recorded the responses given by the subjects. During the collection of this data, it became apparent that some of those sentenced to a life term of imprisonment had a hearing, appeal, judicial review or re-trial in the future that they were anticipating and thought were significant. Therefore, the approximate dates of these events, and what they thought their chances were for being granted parole, for sentence acquittal, or for getting a re-trial etc., were recorded. This was done in order to ascertain their effects during the data analysis. Two inmates had the privilege of going on unescorted temporary absences from the institution, and this was also recorded. If during the interviewing process, the subjected stated on his own accord that he had limited reading/writing skills, or if this became apparent to the investigator, then this was recorded.

Time Experience Scales (Sanders, 1986)

A copy of the questionnaire is presented in Appendix 11, and permission for its use is presented in Appendix 14. It has a total of 52 items and consists of six time scales which measure meaning, fast tempo, slow tempo, attention to death, future orientation, and past orientation (see Appendix 3). Implicit in the interpretation of the scales is the view the people perceive time in a multidimensional manner. Scale I (Meaning) is a Semantic differential scale that contains a pair of adjectives that describe time separated by a seven-point scale. Scores are unweighted sums of responses to items. The lower the score the more negative the evaluation of time, the higher the score, the more positive the evaluation; a midline score indicates a neutral evaluation. The other five scales consist of Likert-items contained on a six-point scale from Strongly Agree to Strongly Disagree. The unweighted summed score of any set of items indicates the underlying belief about time experience. The lower the score, the weaker the belief that experience with the dimension of time occurs. See Appendix 3 for a more detailed description of the Scales.

Reliability And Validity Of Time Experience Scales

The instrument has been pilot tested on 23 older persons from a seniors day centre, pre-tested on a sample of

13 well adults at least 18 years of age, and tested for reliability and validity on 1,062 healthy adults, 18-92 years of age living in the community who were able to read and write. Fifty-five percent of the sample were male and the majority were white, protestant and middle class (Sanders, 1986).

Reliability was measured by estimating the internal consistency (coefficient alpha) and it met the acceptable alpha standard of .70 (Sanders, 1986). The Coefficient alpha Statistics for males are .86 (Meaning), .80 (Fast Tempo), .77 (Slow Tempo), .77 (Attention to Death), .72 (Future Orientation) and .79 (Past Orientation).

To demonstrate construct validity Sanders (1986) statistically found 22 initial factors for males and 21 for females with an eigenvalue of $\geq$ 1.0 which accounted for 61% of the total variance in each group, and that using six factors was the best statistically, accounting for 34% (males, 33.8%; females, 34.8%) of the total 61% variance. Further construct validity is supported by product moment correlations between scales for males which ranged from -.01 (Meaning) to .45 (Attention to Death). The strength of the correlations indicates that the factors are somewhat related, as expected, but not high enough to support a problem with collinearity. Therefore, there is evidence for the separate dimensions (Sanders, 1986).

Administering The Time Experience Scales

The Time Experience Scales questionnaire is presented in Appendix 11. Each subject was told that there were no right or wrong answers but the subject should select the answer that best described how he felt or thought about time. They were told that there were a total of 51 statements to answer (administrative time = approximately one-half hour). The interviewer read all statements to all subjects. If the subject then stated that he preferred to read the possible responses himself and then tell the researcher his answer, this was done. If the subject did not request this, then the researcher also read all possible responses to the subject before he selected his answer. This occurred with only four subjects. Each subject was given a copy of the statements before him which included a visual scale of the possible answers. The responses to the first 37 statements on the questionnaire are represented with a Likert type scale. The investigator pointed to the scale to show that numbers from 1 - 6, from the left hand side to the right hand side of the scale, represent answers from Strongly Disagree with the statement to Strongly Agree with the statement. The lower the number, the more the subject disagreed with the statement. The higher the number, the more the subject agreed with the statement. For those subjects to whom the possible responses were read by the researcher, each end of the spectrum of possible answers was first presented. This was to ascertain where the subject generally felt or thought his answer was. Once the end of the spectrum was obtained, the three possible responses to this end of the spectrum were stated, and the subject was asked to indicate which response best described how he felt or thought about the statement.

A practice statement and response set, that was not included in the questionnaire, was first conducted using the same example for all subjects. The example was:

"Time seems to fly when I'm having fun"

Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
1	2	3	4	5	6

The following is an example of how the investigator conducted the procedure: "I will read to you a statement about how some people feel or think about time. After I read it, please point to and/or state the answer from the scale that best describes how you think or feel about the statement. The stronger you disagree with the statement, the lower the number is, and the more closer to the left hand side of the scale your answer is. The stronger you agree with the statement, the higher the number is, and the more closer to the right hand side of the scale your answer is. We will do a practice question. Time seems to fly when I'm having fun. Do you generally agree or disagree with this statement?" If the subject indicated that he generally disagrees, then the investigator asked "Do you Strongly Disagree, Disagree, or Somewhat Disagree? Chose the answer that best describes how you think or feel by stating your answer or by pointing to the place on the scale." The investigator then circled the number the subject chose on the investigator's copy of the questionnaire. If the subject replied that he generally agrees with the statement, the investigator asked: "Do you Somewhat Agree, Agree or Strongly Agree with the statement?" It was emphasized to all subjects that this was the procedure they were to use to help them to choose their answer. This also helped those subjects who could not read to remember the possible responses. If the subject was able to read, the testing procedure was faster because the subject was able to quickly read all possible responses and state his answer.

The responses to the last 14 statements are represented by a Semantic differential scale. The statements describe how some people use certain words to describe time. For each item, the subject was asked which sentence was true for him. Then he was asked if this was extremely, quite or slightly so. The closer the response was to the word that was true for him, the more he felt that this word described his feeling. If neither word was true or if the two words did not seem to be how the subject thought or felt about time, the center space (labelled neutral) was the answer.

The practice example from the questionnaire was first conducted on all subjects. The following is an example of how the investigator conducted the procedure: "People sometimes use certain words to describe time. I will read two words that describe time. Tell me which word is more true for you. If one word seems to be more true for you, then tell me if this word is extremely, quite or slightly true for you. If neither word is true, or if the two words do not seem to be how you feel, or think about time, then tell me so and your response will be neutral. The nearer in distance you answer is to the word, the more you feel this word describes your feelings. The center space means you are neutral. To indicate your answer, please point to the place on the scale where it is or tell me your answer. We will do a practice question: My time is good. My time is bad. (The investigator pointed out on the scale where the words were represented and where the possible answers were located). Which statement is generally true for you?" If the subject stated that generally his time is good, then the investigator pointed to the scale and asked, "Do you think or feel your time is slightly good, quite good or extremely good? Please point to the place and/or state the best answer."

Limitations Of The Instrument

Because the instrument has been used primarily on white, young and healthy subjects, Sanders (1986) recommended that additional reliability and validity assessment of the scales be done on groups having other characteristics. Sanders suggested that it would be useful to assess the correspondence between the dimensions of temporal experience measured by the scales and measured by different methods. To the investigator's knowledge, it has never been given in interview form.

Strengths Of The Instrument

This instrument was the only instrument found by the investigator to measure several dimensions of time. This instrument therefore captures more of the multidimensional nature of time perception. The instrument captures distinct attributes of time perception by not interpreting each attribute as having polar opposite ends. For example, tempo is not considered to be one concept with slow and fast representing polar opposite ends. Instead, fast tempo and slow tempo are considered two distinct entities. A person can therefore score high both on fast and on slow tempo, for example. A person may perceive time to be passing by fast in some areas of life and slow in other areas. The instrument is easy to administer and score. Using one tool to measure time perception simplified data collection.

Time Estimation Task

The subjective perception of the amount of time that has passed (perceived duration) is not captured by the Time Experience Scales. Since most of the literature reviewed deals with this attribute of time perception, it was therefore important to include. In order to assess the subjective perception of perceived duration, the Consciousness Index was calculated (Bentov, 1977; Newman, 1979). This index is a ratio of the amount of subjective time perceived to have passed divided by the actual interval of objective time that has passed obtained by the production method of time estimation. One number or index is calculated on the basis of this ratio.

Reliability And Validity Of The Time Estimation Task

The production method of time estimation was widely used in the studies reviewed, and the majority of studies related to nursing measured the production of 40 s. The production method is a more accurate measure of perceived duration with less scattering of scores and eliminates the tendency toward verbal rounding of the judged interval (Clausen, 1950). To increase reliability, the measure was taken three times for each subject and the mean was calculated. The accuracy of the stop watch, which met federal laboratory specifications, was periodically checked against a clock.

Administering The Time Estimation Task

The measurement of perceived duration was calculated using the Consciousness Index. The production of a 40 second interval of clock time was assessed. Subjects were told that this was not a test of their accuracy, but of how they perceive the passing of time. The investigator stated the interval (40 s) and the subject was asked to produce it objectively by marking off the time with a stop watch turned face down to give a blind reading (Stewart, 1986). The subject controlled the stop watch button by pressing it to start and stop the timing. Each subject was asked to imagine or picture the sweep of a second-hand on a clock to help mark off the time in order that the mental activity of the subjects be approximately the same for all subjects (Newman, 1982). Prior to the initiation of the task, the investigator demonstrated the use of the stop watch and all subjects had one practice session of producing 40 s.

The instructions were given consistently to all subjects. Subjects were advised that they would not be told their individual scores but that at the completion of the study, they would have a summary of the general group information. Given that subjects were asked to estimate the interval of 40 s of clock time, subjective time was the same (40 s) for all subjects because each interval was thought by the subjects to be 40 s. Objective time was the actual interval produced by the subjects using the stop watch and did vary.

The following is an example of hypothetical data to clarify the derivation of the Consciousness Index.

$$\text{Consciousness Index} = \frac{\text{Subjective time (no. of seconds judged)}}{\text{Objective time (actual clock time)}}$$

Subject 1: $\frac{40}{43} = 0.93$

Subject 2: $\frac{40}{31} = 1.29$

Subject 3: $\frac{40}{28} = 1.43$

The following are the instructions that were consistently given to all subjects: "This is not a test to see how accurate you are. It will help me to determine how you senses the passing of time. Each person senses the passing of time differently. Please make sure that you have removed your watch. Without looking at the face of the stop watch, I would like you to press the button to start the watch and then press it again when you think 40 s have passed. Then, hand me the stop watch without looking at the face of the watch. I would like you to imagine or picture the sweep of a second-hand on a clock to help you mark off the time. You may begin when you are ready."

The Psychological General Well-Being Schedule (Dupuy, 1984)

The Psychological General Well-being Index (PGWB) was used to measure subjective perception of general well-being. Information about this instrument, and permission to use it was obtained from Dupuy (see Appendix 13). Information about this instrument and the actual questionnaire were also obtained from a source from whom copyright permission was granted (see Appendix 15). It is a 22-item Likert type-scale questionnaire that consists of six subscales measuring anxiety, depressed mood, positive well-being, self-control, general health and vitality (see Appendix 1). For each item there are six response options that are scored on a scale from 0 to 5. A value of 0 is given for the most negative option, and 5 for the most positive option. One overall PGWB Index score can be derived, ranging from 0 to 110. Scores for each of the subscales can also be calculated. It can be self-administered or be given in interview form to persons aged 14 to 90 years. It has been given in interview form to persons with mild mental retardation, psychotics, illiterates and non-English speaking persons using immediately available translators. The time for completion is 8-15 min (Dupuy, 1984).

Reliability And Validity Of The PGWB

Extensive data exists about the reliability and validity of the instrument (Dupuy, 1984). In the Rand study (*n* = 1209), the Cronback alpha coefficients were .88 (Anxiety), .84 (Depressed Mood), .83 (Positive Well-Being), .72 (Self-Control), .73 (General Health), and .81 (Vitality) demonstrating internal consistency reliability and the subscales can therefore be validly used. The 22 items forming the PGWB Index have an alpha coefficient of .94, suggesting that it can be used to construct an overall index score. Evidence that the PGWB Index measures a fairly stable attribute over a two-to-three week period and is sensitive to changes in an individual's psychological general well-being is demonstrated by the size of the alternate-form correlation of .75 (Dupuy, 1984).

The alpha coefficients ranged from .901 to .940 from different studies (n = 195 to n = 6913) which give evidence for the internal consistency reliability of the instrument. This indicates that the items are homogenous in terms of what they measure and that individual responses to the items are highly consistent (Dupuy, 1984). The reliability of the instrument is ascertained in terms of test-retest stability. The test-retest stability coefficients ranged from .502 to .861 with a median of .66 (Dupuy, 1984).

Dupuy (1984) stated that several hundred statistical tests of association were done. Statistically significant ($p \leq .001$) correlations were found with 105 items (59.7%) from men when computing the PGWB Index and a large number of medical history items (176 items for men). The correlations of the PGWB Index and 14 mental health scales ranged from -.52 to -.80 indicating that it is sensitive to psychoneurotic subjective distress. The correlations of the PGWB Index with the mental health items, a social-emotional support item, and a three-time period assessment of one's life as a whole ranged from .352 to .599 suggesting strong correlations (Dupuy, 1984).

Administering The PGWB Schedule

The Psychological General Well-Being Schedule is presented in Appendix 12. The questions were read to all subjects by the investigator. They were told that there were no right or wrong answers, but to give the answers that best described how they felt and how things have been going for them. If a subject stated that he wished to read the possible answers himself and then state his answer, it was emphasized that he read *all* possible answers before stating his answer. If the subject did not read the possible answers by himself and immediately choose his answer, the investigator presented each end of the spectrum of answers to the subject first and determined which end of the spectrum the subject's answer fit into. This occurred for only four subjects. The range of response options in that category was presented. All subjects had a copy of the questionnaire in front of them so that they could visually see the scale from 0 to 5. A subject was told and shown that the lower the number, the more negative he felt about the question asked. The higher the number the more positive he felt about the question asked. The subject was then asked to point to the number and/or state the response that best applied to him and the investigator marked the response indicated on the investigator's copy.

A practice question and response set, that was not included in the questionnaire, was first conducted using the same example for all subjects. The example was:

"How well were you able to satisfy or meet most of yours needs (DURING the PAST MONTH)?

5 () All my needs were completely satisfied

4 () Most of my needs were generally satisfied

3 () About half of my needs were reasonably satisfied

2 () Only a few of my needs were reasonably satisfied

1 () I was only able to barely satisfy my needs

0 () I could not satisfy any of my needs

The following is an example of how the investigator conducted the procedure: "I will ask you questions about your health. Please point to and/or state the answer that best describes how you feel or think about the question. The lower the number on the answers, the more negative you feel about the question asked. The higher the number, the more positive you feel. We will do a practice question. How well were you able to satisfy or meet most of your needs during the past month? Is your answer generally in the range of having about half of your needs to all of yours needs being satisfied, or is it in the general range of only a few of your needs being satisfied to not being able to satisfy any of your needs?" If the subject replied that his answer was in the first category, then he was asked: "Do you feel that all yours needs were completely satisfied, most of your needs were generally satisfied, or about half of your needs were reasonably satisfied?" The subject then stated or pointed to his specific answer. It was emphasized to all subjects that this was the procedure they were to use to help them to choose their answer. This also helped those subjects who could not read to remember the possible responses. If the subject was able to read, the testing procedure was faster because the subject was able to quickly read all possible responses and choose his answer.

Limitations Of The PGWB Schedule

The validity studies of the PGWB Schedule have been mainly limited to its relationships with negative conditions. Dupuy (1984) suggests that behaviors and conditions that indicate more positive life events would be useful in evaluating the meaning of higher levels of PGWB.

Strengths Of The PGWB Schedule

The PGWB Schedule has been used extensively with different groups to compare difference in subjective well-being. The PGWB Index is a general measure of well-being so is not condition specific and is sensitive to small changes in intrapsychic-well being. It is easy to administer and score (Dupuy, 1984).

Ethical Considerations

Because prisoners are considered special subjects in that they are captives, extra precautions were taken to guard against a perception of coercion. Time was given for inmate consideration to participate in the study, with verbal explanations by the investigator during the process. A letter inviting all English-speaking inmates to participate in the pilot study and the main study were sent by a third party at the respective institutions. An opportunity was given at this point in time to find out more information at a later date if they wished to. If they chose to find out more information about the study, a personal contact was made with the inmate by the investigator. At that time, further opportunity was provided so that the inmate could decide whether or not to participate. If they decided to participate, a tape-recorded consent was obtained to ensure that an informed consent was obtained by all subjects, including those who could not read or write. If they required more time for deliberation, they were encouraged to take the time, and to contact the investigator at a later date if they decided to participate. Four subjects asked for this time and all later decided not to participate.

Their voluntary participation and ability to withdraw any time without penalty was emphasized. It was stressed that their participation/non-participation would not affect their parole eligibility, privileges or health care treatment. Anonymity and confidentiality were emphasized by the use of code numbers. Only the investigator had access to the cross-check list of names and respective code numbers which will be destroyed after the study is completed. Completed questionnaires are stored in a locked file outside of the correctional institution. All questionnaires will be destroyed after five years. Inmate identification and penitentiary identification will not occur in the report or be divulged in any publication. Neither the subject nor the Correctional Service of Canada will have access to individual results. Many inmates stated that if this anonymity and confidentiality were not considered by the researcher, then they would not have agreed to participate. They verbally expressed their gratitude that such stringent measures for ensuring anonymity/confidentiality were being taken by the researcher, and that they had the means to contact the university if they had any concerns about the study.

One copy of the complete study will be sent to the respective institutions for inmate use. It was emphasized to the inmates that if they were not in either of the institutions where the pilot and main studies were conducted, and still desired a *summary* copy of the study, then they could contact the investigator and one would be sent to them. Many inmates expressed gratitude that they would be receiving the results of the study because they stated that this has not always been the case with other studies that they participated in or heard about. The Wardens and Chiefs of Health Care of both correctional institutions, and the Correctional Service of Canada will receive a copy of the complete study.

It was emphasized that conflicting appointment times could be re-scheduled if desired and this was required for six subjects. It was stressed that the total amount of subject time should not exceed two hours and it did not. It was anticipated that some inmates would be illiterate, and the sensitivity to this was recognized. To help reduce possible embarrassment about this issue, data was recorded by the investigator by verbally interviewing all subjects. Therefore, attention was not drawn to those inmates who could not read/write, and this helped to increase the response rate. It became apparent to the investigator that four subjects had very limited reading/writing ability. However, all four subjects volunteered this information and did not appear to be embarrassed about it. One of these subjects specifically asked if the investigator would contact the school teacher on his behalf in order to improve his reading and writing skills. This referral was done.

There were no detrimental physical or mental effects, and possible fatigue during data collection was controlled by a rest period. If severe well-being distress was evaluated from the questionnaire during the interviewing process, the subject was told that there seemed to be a problem, and after a discussion with him, health care was contacted on his behalf. Three subjects were thus referred to health care. The health care nurses stated that they did do a follow-up on these inmates. Three subjects were visibly assessed by the investigator to be in a condition other than normal that is, under the influence of drugs. Two of these subjects voluntarily informed the investigator that they were under the influence of drugs. Correctional staff also informed the investigator that the three subjects appeared to be in a condition other than normal before the interviewing began. They therefore stated that they would take the appropriate action if need be. Subjects were made aware that security officers may/may not be present in the room depending on institutional requirements, and therefore confidentiality could be breached. If the subject was uncomfortable with this, then he need not give his consent to participate. This was not a problem, because none of the subjects interviewed were accompanied by a security officer. Some of the subjects stated that if that would have been the case with them, they would not have consented. Other subjects stated that the presence of a security officer would not have mattered.

It was emphasized to all subjects that this study was just a first small step in starting to do nursing research in penitentiaries, and that future nursing research would be needed to build on this study before any dramatic changes in correctional nursing care could be made. However, it was stressed that the information from this study would provide important information about inmate perceptions of time and well-being and how the person-environmental variables were related to these perceptions.

Many subjects stated that participating in the study helped to relieve their boredom and pass the time. Many felt that the experience of time was definitely significant to inmates and thus warranted study. Many stated that they were pleased to be able to participate in a study that considered their perceptions rather than other people's perceptions of what their well-being may be like or what time may be perceived like for inmates. Many stated that if their participation could assist in any way to help improve nursing care in penitentiaries, even if this was just a beginning study and future research would be needed, that it was worth it. Many inmates stated that because the investigator was known to have the experience of nursing in a penitentiary, and was also personally known to many of them, that these were factors they considered before replying. They stated that it was important to them that the researcher have a first hand knowledge of what it was like in a penitentiary. They also stated that the researcher "had helped them when she worked as a nurse before", so now they wanted "to help her with her research and the completion of her studies". The institutional psychologists and managers also informed the researcher that these factors were important because there have been several students in the past who did studies and who did not get as high a response rate.

The Correctional Service of Canada and the institutions were made aware that the data collection would be about one week for the pilot study and four months for the main study. It actually took only 5 days for the pilot study and 46 days for the main study. The institutions ensured that rooms be made available for the researcher for both studies. When the assigned room in health care for the data collection for the main study was needed for institutional matters, the Chief of Health Care informed the researcher ahead of time and the researcher then planned to interview a subject from the disassociation and segregation area in the assigned room there. Thus both the institutional needs and research needs were met. It was deemed necessary only once for the researcher to leave the assigned interview room in disassociation and segregation which did not cause any problems as another room was available for the researcher. The researcher worked closely with other institutional staff by informing them about the study and pre-arranging with them when the researcher would be data collecting in their area and by determining whether it was at a convenient time for them. For example, the researcher did not interview subjects in the disassociation and segregation area on the days when the correctional staff were extremely busy such as on institutional court days.

The potential contributions of the study exceeded the risks. The research proposal was reviewed for adequacy by the Ethics Committee of the Faculty of Nursing and by

Regional Headquarters of the Correctional Service of Canada. The approval for conducting the studies was also given by the Wardens and Chiefs of Health Care at the respective penitentiaries (see Appendices 16, 17, 18, & 19).

Analysis

The data were mainly equal appearing interval in nature, however some nominal and ratio data were involved. The SPSS-X statistical package was used for computer analysis of the data and the level of significant was set at .05. There were 13 components to the analysis: (1) reliability and validity of measurement tools on the inmate sample, (2) assessment of linearity, (3) sample characteristics, (4) descriptive analysis of the Psychological General Well-Being (PGWB) scores, (5) descriptive analysis of the time perception scores, (6) correlations between time perception variables, (7) analysis of the PGWB categories with time perception variables, (8) correlations of PGWB variables with time perception variables, (9) analysis of the PGWB variables with the biographical variables, (10) analysis of the time perception variables with the biographical variables, (11) comparisons of housing locations with the well-being perception, time perception, and biographical variables, (12) comparison of type of sentence with the well-being perception, time perception, and biographical variables, and (13) summary regression analyses for the overall sample of the relationships between the PGWB Index, time perception variables, and biographical variables.

An overview of the data analysis employed follows, however, more explicit descriptions and explanations of the procedures used are given in Chapter IV.

1. The reliability and validity of the Psychological general Well-Being (PGWB) Schedule, Time Experience Scales (TES), and the production method of the time estimation task and the Consciousness Index were assessed by the alpha coefficients, Pearson product moment correlations, and orthogonal procrustes confirmatory item factor analysis (Reddon, 1991).

2. Linearity of the data was assessed by evaluating the difference between the correlation ratio (eta^2) and the Pearson product moment correlation (r^2) (Glass & Hopkins, 1984), and by using Bonferroni adjusted p-values (Miller, 1981).

3. The sample was described in terms of biographical information obtained from the questionnaire. Means, standard deviations, ranges, and frequency distributions were reported.

4. Results of the well-being perception scores derived from the PGWB Schedule were described in terms of means, standard deviations, ranges, and the total PGWB Index. The PGWB Index scores were then described in terms of three broad categories, Severe Distress, Moderate

Distress, and Positive Well-Being (H.J. Dupuy, personal communication, March 2, 1991). The means and frequency distributions were reported on these categorizations and analysis of variance, in conjunction with the Scheffé contrast procedure, were also used.

5. Results of the time perception variables derived from the TES were described in terms of means, standard deviations, and ranges, and from results determining whether the TES scale means were significantly different from the hypothetical population means, that is, the midpoint scale value (S.A. Sanders, personal communication, March 4, 1991). Results of the time perception variables were also derived from the production method of time estimation and the Consciousness Index and were described in terms of means and standard deviations, and from results determining if the mean Consciousness Index was significantly different from a hypothetical population mean of 1.0 or perfect accuracy.

6. Pearson product moment correlations were conducted to assess the relationships between the time perception variables derived from the TES and the Consciousness Index.

7. Analysis of the PGWB categories with the time perception variables were made by one way analysis of variance in conjunction with the Scheffé contrast procedure.

8. The relationships of the PGWB variables with the time perception variables were assessed by one way analysis of variance in conjunction with the Scheffé contrast

procedure, by the t-test for independent samples, and by Pearson product moment correlations.

9. The relationships of the PGWB variables with the biographical variables were assessed by one way analysis of variance in conjunction with the Scheffé contrast procedure, by the t-test for independent samples, and by Pearson product moment correlations.

10. The relationships of the time perception variables with the biographical variable were assessed by one way analysis of variance in conjunction with the Scheffé contrast procedure, by the t-test for independent samples, and by Pearson product moment correlations.

11. To compare the inmates housed in disassociation and segregation (D&S) with those housed elsewhere in the prison on well being perception, time perception, and the biographical variables, Chi-square tests, the test for equality of proportions (Fleiss, 1981), Pearson product moment correlations, the t-test for independent samples, and regression analyses were conducted.

12. To compare inmates serving a life or indefinite sentence with those serving a definite sentence on the well-being perception, time perception, and biographical variables, Chi-square tests, the test for equality of proportions (Fleiss, 1981), Pearson product moment correlations, the t-test for independent samples, and regression analyses were conducted.

13. Regression analysis was conducted to summarize the relationship between the PGWB Index and the time perception variables and biographical variables. The Time Experience Variables were orthogonally transformed to facilitate their interpretation in the regression analyses (Mulaik, 1972).

CHAPTER IV

ANALYSIS OF DATA AND DISCUSSION OF FINDINGS

Introduction

This chapter contains the results of the data analysis and the discussion of the findings. The findings are organized into 13 major sections:

1. Reliability and validity of measurement tools on the inmate sample.
2. Assessment of linearity.
3. Sample characteristics.
4. Descriptive analysis of the Psychological General Well-Being scores obtained from the Psychological General Well-Being Schedule, followed by a discussion.
5. Descriptive analysis of the Time perception scores, obtained from the Time Experience Scales (TES) (i.e., Meaning, Fast Tempo, Slow Tempo, Attention to Death, Future Orientation, and Past Orientation) and the Consciousness Index, obtained from the production method of time estimation. A discussion of the Consciousness Index results and a summary of the results of the time perception scores follow.
6. Correlations between time perception variables, which includes the analysis of the results, discussion, and summary.
7. Analysis of the PGWB categories of Severe Distress, Moderate Distress, and Positive Well-Being with

the time perception variables.

8. Correlations of the PGWB variables (i.e., Anxiety, Depressed Mod, Positive Well-Being, Self-Control, General Health, Vitality, and the PGWB Index) with time perception variables, followed by a discussion and summary.

9. Analysis of the PGWB variables with the biographical variables, discussion, and summary.

10. Analysis of the time perception variables with the biographical variables, discussion, and summary.

11. Comparison of inmates housed in disassociation and segregation with inmates housed elsewhere in the prison on the well-being perception, time perception, and biographical variables, followed by a discussion and summary.

12. Comparison of inmates serving a life or indefinite sentence with inmates serving a definite sentence on the well-being perception, time perception, and biographical variables, followed by a discussion and summary.

13. Summary regression analyses of the relationships between the PGWB Index, time perception variables, and biographical variables for the over all sample which included six major components.

Reliability And Validity Of Measurement Tools On Inmate Sample

Reliability Of The Psychological General Well-Being Schedule (PGWB)

A reliability analysis was conducted on the PGWB

Schedule. The coefficient alpha statistics are summarized in Table 4.1 indicating the reliability of measurement for using each of the six scales and for using the total scales on the inmate sample. The alpha coefficients indicate a moderate internal consistency reliability for the subscales Self-Control and General Health, and high internal consistency reliability for the other subscales with Depressed Mood having the highest reliability, and Self-Control having the lowest reliability. The 22 items forming the PGWB Index have a high alpha coefficient of .9296, demonstrating a high reliability for using the overall PGWB Index score on the inmate sample.

Validity Of The Psychological General Well-Being Schedule (PGWB)

To assess construct validity of the PGWB Schedule, relationships between scales were examined. Additional empirical evidence of construct validity is obtained to the extent that factors correlate with one another or with other variables as expected (Nunnally, 1978). The Pearson correlations between the six scales and with the total are summarized in Table 4.2. The items for the Anxiety and Depressed Mood scales are scored from 0-5 such that the lower the score, the more the anxiety and depressed mood, and the higher the score, the less the anxiety and depressed mood. The items for Positive Well-Being, Self-Control, General Health, and Vitality are scored from 0-5 such that

Table 4.1

Coefficient Alphas For PGWB Schedule On Inmate Sample (n=85)

Scale	Items	Alpha
Anxiety	5, 8, 17, 19, 22	.8504
Depressed Mood	3, 7, 11	.8903
Positive Well-Being	1, 9, 15, 20	.8097
Self-Control	4, 14, 18	.6690
General Health	2, 10, 13	.6705
Vitality	6, 12, 16, 21	.8214
Total	all items	.9296

Note. PGWB = Psychological General Well-Being.

Table 4.2

Pearson Correlations Between Scales On PGWB (n=85)

	Anxiety	Depressed	Positive	Control	Health	Vitality
Anxiety		.7024**	.6330**	.6186**	.3530**	.4799**
Depressed			.6770**	.7123**	.4044**	.6302**
Positive				.6018**	.2868**	.6621**
Control					.2046	.3958**
Health						.5021**
Vitality						
Total (PGWB)	.8409**	.8819**	.8357**	.7440**	.5624**	.7866**

Note. 2-tailed *$p \leq .05$, **$p \leq .01$, Depressed = Depressed Mood, Positive = Positive Well-Being, Control = Self-Control, Health = General Health, PGWB = Psychological General Well-Being.

the lower the score, the lower the positive well-being, self-control, general health, and vitality, and the higher the score, the higher the positive well-being, self-control, general health, and vitality.

The correlations between five scales were significantly positively related to each other and to the total (PGWB Index) as would be expected. The positive correlation between Self-Control and General Health was not significant (p = .060), however both have a significant positive correlation to the total (PGWB Index). The strengths of the correlations between most of the scales were below .70 indicating that although they were somewhat related, they were not high enough to support a problem with collinearity (Nunnally, 1978). The correlations between Anxiety-Depressed Mood, and between Depressed Mood-Self-Control were just slightly above .70. This indicates that there might be a very slight problem with collinearity. Generally, the scales can be interpreted as separate dimensions. The correlations of each scale with the total (PGWB Index) support the validity of using these scales to measure total general well-being on the inmate sample.

Orthogonal procustes confirmatory item factor analysis was done to test the correspondence of the item key with the factor structure for the PGWB Schedule by rotating the factors to the item keying hypothesis matrix using Reddon's (1991) procrustes analysis package. This approach is a stringent and explicit test of internal item structure and validity (Holden, Reddon, Jackson, & Helmes, 1983). An unrotated principal component analysis was obtained from the item correlation matrix. The six principal components were rotated orthogonally (procrustes rotation) to a target representing the hypothesis that the items on each scale would define a factor with loadings corresponding to the scoring key for the six PGWB scales. Entries in the hypothesis matrix were +1 or 0 for keyed and non-keyed items, respectively, for each column of the hypothesis matrix corresponded to one of the six PGWB scales. The six factors rotated were thus based on theoretical expectations which is the number of scales. The degree of congruence between the rotated matrices and the hypothesis matrices for the scales were as follows: Anxiety (.8178, $p = .00020$), Depressed Mood (.6587, $p = .07116$), Positive Well-Being (.7387, $p = .01278$), Self-Control (.7289, $p = .01372$), General Health (.8680, $p = .00014$) and Vitality (.7646, $p = .00456$), where the p-values were obtained from 50,000 randomizations of the hypothesis matrix (i.e., the rows were randomly permutated). The data from the inmate study demonstrate a moderate to strong association between the theoretical structure of the PGWB and its empirical item structure with Depressed Mood having the weakest association and General Health having the strongest association with the theoretical structure. There is a very good overall fit of the six scales to the overall hypothesis scales (p = .00002), where overall fit was defined as the sum of the squares of the error matrix for all six factors considered simultaneously (Skakun, Maguire, & Hakstian, 1976) and the p-value was also obtained through 50,000 randomizations.

Reliability Of The Time Experience Scales (TES)

A reliability analysis was done on the TES questionnaire. The coefficient alpha statistics are summarized in Table 4.3 indicating the reliability of measurement for using the six factors on the inmate sample. The alpha coefficients indicate that Fast Tempo has the lowest internal consistency reliability for the inmate sample, and Meaning has the highest. A high reliability for using the TES as a whole on the inmate sample is indicated by the coefficient alpha statistic of .8014.

The response for item 7 was missing for one subject and the response for item 27 was missing for one subject, both of which are used for the calculation of Future Orientation. The means for these two subjects were prorated by assigning the missing item response the mean of the six items for these subjects, rounded to the nearest integer.

Validity Of The Time Experience Scales (TES)

To assess construct validity of the TES, relationships between scales were examined. To the extent that factors correlate with one another or with other variables as expected, additional empirical evidence of construct

Table 4.3

Coefficient Alphas For TES On Inmate Sample (n=85)

Scale	Items	Alpha
Meaning	38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51	.8724
Fast	2, 6, 11, 13, 16,24, 29, 34	.5753
Slow	1, 4, 8, 12, 18, 20, 28, 32, 37	.7286
Death	14, 17, 19, 23, 25, 26, 30, 33, 36	.8553
Future	3, 5, 7, 10, 21, 27, 35	.6681
Past	9, 15, 22, 31	.6823
Total	all items	.8014

Note. Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention Death, Future = Future Orientation, Past = Past Orientation, TES = Time Experience Scales.

validity is obtained (Nunnally, 1978). The Pearson correlations between the six scales on the TES are summarized in Table 4.4. The strengths of the correlations indicate that although some of the factors were somewhat related, they were not high enough to support a problem with collinearity (Nunnally, 1978). The scales were therefore interpreted as separate dimensions.

Orthogonal procustes confirmatory item factor analysis was done to test the correspondence of the item keying with the factor structure for the TES by rotating the factors to the item keying hypothesis matrix with Reddon's (1991) procrustes analysis package. This approach is a stringent and explicit test of internal item structure and validity (Holden et al., 1983). An unrotated principal component analysis was obtained from the item correlation matrix. The six principal components were rotated orthogonally (procrustes rotation) to a target representing the hypothesis that the items on each scale would define a factor with loadings corresponding to the scoring key for the six TES scales. Entries in the hypothesis matrix were +1 or 0 for keyed and non-keyed items, respectively, for each column of the hypothesis matrix corresponded to one of the six TES scales. The six factors rotated were thus based on theoretical expectations which is the number of scales. The degree of congruence between the rotated matrices and the hypothesis matrices for the scales were as follows: Fast

Table 4.4

Pearson Correlations Between Scales On TES (n=85)

Scale	Fast	Slow	Death	Future	Past
Meaning	.0086	-.1304	-.2849**	.2804**	-.1808
Fast		.3269**	.2144*	.2483*	.1149
Slow			.3658**	.2775**	.1666
Death				.2042	.2708*
Future					-.0272
Past					

Note. 2-tailed *$p<.05$, **$p\leq.01$, Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention to Death, Future = Future Orientation, Past = Past Orientation, TES = Time Experience Scales.

Tempo (.7022, p = .00004), Slow Tempo (.7550, p = .00002), Attention to Death (.8865, p = .00002), Future Orientation (.6435, p = .00042), Past Orientation (.7040, p = .00002), and Meaning (.8962, p = .00002), where the p-values were obtained from 50,000 randomizations of the hypothesis matrix (i.e., the rows were randomly permutated). The data from the inmate study demonstrate a moderate to strong association between the theoretical structure of the TES and its empirical item structure with Future Orientation having the weakest association and Meaning having the strongest association with the theoretical structure. There is a very good overall fit of the six scales to the overall hypothesis scales (p = .00002), where overall fit as defined as the sum of the squares of the error matrix for all six factors considered simultaneously (Skakun et al, 1976) and the p-value was also obtained through 50,000 randomizations.

Reliability Of Time Estimation Task (Production Method)

Subjects were asked to produce 40 s on the stop watch three times and the mean was calculated. The Consciousness Index was then calculated by dividing 40 s by the sum of the means of Time 1, 2, and 3. The sample mean times produced were Time 1 = 32.1153, Time 2 = 34.9271, and Time 3 = 36.6400 s. It appears that with repeated testing, the production intervals get longer suggesting a change in the direction of a slower counting rate with practice. Carlson and Feingerg (1970) found a similar result in their experiments but indicated that "... practice effects are not of great importance in and of themselves." (p. 179). A repeated measures analysis of variance was done to test the homogeneity of the overall time scores with the following result: Hotellings T-Squared = 38.9293, F = 19.2329, p = .000. The null hypothesis that mean 1 = mean 2 = mean 3 was therefore rejected because the mean times differed significantly thus indicating a practice effect. The Test-Re-Test coefficients of stability were as follows: Time 1-Time 2 (.8944), Time 1-Time 3 (.8946), and Time 2-Time 3 (.9432). An overall reliability Alpha coefficient of .9677 was obtained for the three time scores together indicating that using the overall mean of Time 1, Time 2, and Time 3 (m = 34.5608) had a high reliability of measurement.

Assessment Of Linearity

It was important to determine whether linear data analysis was appropriate for the study. It was decided not to use scatter plots for this purpose for the following reasons. Scatter plots are subject to subjective interpretation. They do not take sampling variability into account. If the relationships are weak, the cloud of points will deviate from an elliptical pattern toward a more circular pattern which exacerbates subjective interpretation. Therefore, it was decided to use more objective criteria that are replicable because the criteria for non-linearity are explicit.

Linearity was assessed for the bivariate relationship between time and well-being perception which is the focus of the study. This was assessed by evaluating the difference between the correlation ratio (eta^2) and the Pearson product moment correlation. While the Pearson product moment correlation assesses strength of linear relationship, the correlation ratio is sensitive to non-linear aspects of the relation. If eta^2 equals r^2 then there is perfect linearity. Differences between eta^2 and r^2 indicate non-linearity. The F-test was used to assess this difference. If the F, $p<.05$, then the relationship is non-linear. If the F, $p>.05$, then the relationship is linear (Glass & Hopkins, 1984).

Because the direction of the relationships between the time perception variables and the well-being perception variables is not specified by the conceptual framework, first the time perception variables (dependent variables) were analysed as a function of the well-being perception variables (independent variables), then the well-being perception variables (dependent variables) were analysed as a function of the time perception variables (independent variables). When the time perception variables were analysed as a function of the well-being perception variables, only 8 out of the 49 possible relationships (16.33%) were non-linear. However, using Bonferroni adjusted p-values (Miller, 1981; i.e., $\frac{.05}{49} = .001$, approximately), none of the tests were significant at this more conservative level, which suggests that linear data analysis is appropriate. When the well-being perception variables were analysed as a function of the time perception variables, only 5 out of the 49 possible relationships (10.20%) were non-linear. However, using Bonferroni adjusted p-values (Miller, 1981; i.e., $\frac{.05}{49}$, approximately), none of the tests were significant at this more conservative level, which suggests that linear data analysis was appropriate (Miller, 1981). All the non-linear relationships are reported in Table 4.5. When the relationship obtained was non-linear using the .05 criterion as analysed in one direction, the relationship was linear using the .05 criterion when analysed in the other direction. Therefore, there was additional evidence that linear data analysis was appropriate for this study.

Sample Characteristics

The following is a description of the sample obtained from the Biographical Data Questionnaire. The sample consisted of 85 male inmates 20 to 69 years of age, mean (m) equal to 34.459, standard deviation (SD) equal to 9.278, of which 44.7% were single (n = 38), 29.4% were either married (n = 16) or common law (n = 9), and 25.9% were separated (n = 6), divorced (n = 11) or widowed (n = 5). The highest grade or number of years of elementary or high school that

Table 4.5

The Non-Linear Relationships Between Time And Well-Being Perception

Dependent Variables = Time Perception		Dependent Variables = Well-Being Perception	
Relationship	p	Relationship	p
Past-Anxiety	.6948	Anxiety-Past	.0250*
Fast-Depressed	.0395*	Depressed-Fast	.4532
Slow-Depressed	.0591	Depressed-Slow	.0311*
Future-Depressed	.0176*	Depressed-Future	.6037
Past-Depressed	.0110*	Depressed-Past	.4326
Meaning-Positive	.0295*	Positive-Meaning	.5254
Future-Positive	.0049*	Positive-Future	.5160
Death-Control	.0396*	Control-Death	.0529
Fast-Vitality	.4935	Vitality-Fast	.0277*
Past-Vitality	.5387	Vitality-Past	.0167*
C.I.-Vitality	.0268*	Vitality-C.I.	.2839
Fast-Index	.0326*	Index-Fast	.1141
Past-Index	.5484	Index-Past	.0095*

Note. p = the F probability for deviation from linearity, * = the F, probability <.05 which indicates a non-linear relationship, C.I. = Consciousness Index, Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention to Death, Future = Future Orientation, Past = Past Orientation, Depressed = Depressed Mood, Positive = Positive Well-Being, Control = Self Control, Index = Psychological General Well-Being Index.

they completed ranged from 0.0 to 13 (m = 10.129, SD = 2.384). Of the total sample, 42.4% (n = 36) obtained less than a high school diploma, 16.5% (n = 14) obtained a high school diploma, 34.1% (n = 29) obtained a technical school diploma or certificate, and 7.1% (n = 6) obtained a college or university degree as their highest education credential.

The number of ethnocultural groups a subject belonged to ranged from 1.0 to 6.0 groups. Because the interviewing question about ethnicity allowed the selection of up to six groups, this limited the ethnocultural analysis to the following description. Forty percent (n = 34) of the sample belonged to only one, 27.1% (n = 23) belonged to two, 20.0% (n = 17) belonged to three, 9.4% belonged to four (n = 7) or six (n = 1) ethnocultural groups, and 3.5% (n = 3) did not know their ethnocultural heritage. The ethnocultural groups cited most frequently included Metis or North American Indian (n = 35), French (n = 24) and English (n = 19).

The number of jobs the inmates in the sample had outside of prison in the past 10 years ranged from 0.0 to 40.0 (m = 4.859, SD = 8.404). They were asked what the shortest and longest times they were employed at the same job outside of prison in the past 10 years were. The results are reported in Table 4.6. Of the total sample, 57.6% stated that the shortest time that they had been employed at the same job outside of prison in the past 10 years was one year or less, and 45.8% stated that the

Table 4.6

Period Of Time Spent In One Job Outside Prison In Past 10 Yeras

	Shortest Time		Longest Time	
	Frequency	Percent	Frequency	Percent
less than 6 months	38	44.7	9	10.6
6-12 months	11	12.9	15	17.6
more than 1 year-less than 3	8	9.4	15	17.6
3 years or more-less than 5	5	5.9	7	8.2
5 years or more-less than 10	2	2.4	12	14.1
10 years or more-less than 15	2	2.4	6	7.1
15 years or more-less than 20	1	1.2	1	1.2
20 years or more-less than 25	0	0.0	2	2.4
25 years or more-less than 30	0	0.0	0	0.0
30 years or more-less than 35	1	1.2	1	1.2
not applicable	17	20.0	17	20.0
	85	100.0	85	100.0

longest time that they had been employed at the same job was less than three years. Further analysis of these variables was not conducted.

Since the interviewing question about the kinds of jobs they had been employed in did not specify mutually exclusive answers, this limited the analysis to only the following description. The kinds of jobs cited most frequently included semi-skilled or unskilled, skills or technical trades, and business. Of the total sample, 58.8% (n = 50) specified semi-skilled or unskilled, 27.2% (n = 23) specified skills or technical trades, and 17.7% (n = 15) specified business as at least one of the kinds of jobs they were employed in outside of prison in the past 10 years. Twenty percent of the sample were never employed because either they were in prison, or outside of prison and unemployed.

Of the total sample, 63.5% (n = 54) were working and 36.5% (n = 31) were not, 43.5% (n = 37) were going to school or taking an educational course and 56.5% (n = 48) were not. Therefore, 80.0% (n = 68) of the sample were involved in the formal activity of work and/or education, and 20.0% (n = 17) were not involved in this type of formal activity.

The inmates in the sample were housed in four different locations in the prison. The majority were housed in population (where they are permitted free movement at specified times); followed by disassociation and segregation (where they are locked in their cells for approximately 22 hr per day) (see Table 4.7). The period of time (years) since they came to their present housing area is also reported in Table 4.7. One way analysis of variance resulted in a significant difference in the means of the length of time since they came to the present housing area between those in disassociation and segregation, population, health care (where they are admitted for health reasons), and induction (where they are usually temporarily housed until a cell is available in population) (p = .0231). Results of the Scheffé contrast procedure, however, indicated that the differences between groups were not large as no two were significantly different at the .050 level.

The number of years the inmates in the sample had been in this prison since admission ranged from 0.13 to 11.49 years (m = 3.182, SD = 2.893). The number of years since they had last been 'on the street' (i.e., not prisoners) ranged from 0.17 to 16.00 years (m = 4.902, SD = 4.406). The total number of years that they had spent altogether in their life time in some type of correctional facility ranged from 1.08 to 31.00 years (m = 10.679, SD = 6.558).

The inmates in the sample were serving three types of sentences of which 60.0% (n = 51) were serving a definite time period (i.e., have a warrant or sentence expiry date), 37.6% (n = 32) were serving life (i.e., do not have warrant expiry date, but eligible for parole after a prescribed

Table 4.7

Period Of Time Since Inmate Came To Housing Area

Area Housed			Years Housed In Area		
	Frequency	%	Range	m	SD
D&S	20	23.5	.01-2.00	0.601	0.670
Population	55	64.7	.01-8.75	1.604	1.841
Health Care	6	7.1	.01-1.84	0.376	0.723
Induction	4	4.7	.12-.33	0.219	0.093
All Areas	85	100.0	.01-8.75	1.216	1.612

Note. m = mean, SD = standard deviation, % = percent, D&S = Disassociation & Segregation.

number of years), and 2.4% (n = 2) were serving an indefinite sentence (i.e., sentenced to an undetermined number of years so do not have a warrant expiry date).

Of the total sample, 57.6% (n = 49) cited their last parole eligibility date. The mean number of year since their last parole eligibility date was 1.685 years (range = 0.02-15.79, SD = 2.806). One inmate did not know his last parole eligibility date, and 41.2% (n = 35) did not have a last parole eligibility date. Of the total sample on this last parole eligibility date, 9.4% (n = 8) were granted parole, 36.5% (n = 31) were not granted parole, and 11.8% (n = 10) waived their last parole eligibility date (i.e., decided not to go before the Parole Board), and 42.4% (n = 36) did not have a last parole eligibility date. Of those who had a last parole eligibility date, approximately 63% were not granted parole. Regarding their next parole eligibility date, 88.2% (n = 75) specified the date. The range was 0.00 years (i.e., one inmate's date was within one month of the interview date) to 23.47 years (m = 3.727, SD = 5.731). Approximately 2.4% (n = 2) of the total sample did not know the date, and 9.4% (n = 8) did not have a next parole eligibility date. Of the total sample on this next parole eligibility date, 55.3% (n = 47) thought their chances were good, 21.2% (n = 18) thought their chances were poor, and 12.9% (n = 11) did not know their chances of being granted parole. One inmate stated that he will waive his next parole eligibility date (i.e., not go before the Parole Board), and 9.4% (n = 8) did not have a next parole eligibility date. Therefore, of those inmates who have a next parole eligibility date, approximately 63% thought that their chances were good for being granted parole.

Only those inmates serving a definite period of time for a sentence have a mandatory supervision date (MS), that is, the authorities usually release them from prison after they have served about two-thirds of their sentence but they are still supervised by parole. One inmate did not know his MS date, and 58.8% (n = 50) of the sample specified their MS dates. The range was 0.00 (i.e., one inmate had an MS date within one month of the interview date) to 10.14 years left until their MS date (m = 2.309, SD = 2.132). Of the total sample, 52.9% (n = 45) wish that they will be released on their MS date (one inmate's MS date had passed and he wished he was released but was not yet released), 2.4% (n = 2) do not wish to be released on their MS date, and 4.7% (n = 4) did not know whether they wanted to be released at this time, and 40% (n = 34) do not have a MS date. Of those who have an MS date, approximately 90% wish to be released. Usually, inmates have to be released on their MS date, but they can chose to complete their sentence in prison, and on rare occasion, the authorities will not release the inmate on their MS date. Generally, chances are good that the authorities will release the inmate on this date.

Only those inmates serving a definite period of time for a sentence have a warrant (sentence) expiry date, a date when they are no longer supervised by correctional or parole authorities. Therefore, 60.0% (n = 51) of the sample had a warrant expiry date which ranged from 0.66 to 15.91 years left until warrant expiry (m = 4.634, SD = 3.841), while 40.0% (n = 34) did not have a warrant expiry date.

Of the total sample, 11 inmates, of whom 10 were serving a life sentence, had a hearing, judicial review, retrial, or appeal date in the future. This information was not formally part of the interviewing questions, however it was noted because of the importance the inmates also attach to these dates. The number of years left until the particular date ranged from .06 to 9.17 years (m = 3.439, SD = 3.376), and 8.2% (n = 7) thought that their chances were good, 1.2% (n = 1) thought that his chances were poor, and 3.5% (n = 3) did not know what their chances were at their date for being released, having their sentence reduced, or for having the desired retrial. Of course, 87.1% (n = 74) of the sample did not have a hearing, judicial review, retrial, or appeal date in the future. Of the 11 inmates who have such dates, approximately 64% thought that their chances were good at these dates.

Parole, mandatory supervision, and hearing, judicial review, retrial and appeal dates are important dates for inmates. It is on these dates that the inmate may be released, be granted parole, have his sentence reduced, or have his case come to trial again. One of these important dates that apply to the inmate will arise in the future sooner than the others that apply. The period of time left until their soonest important date was calculated for each inmate with the following results: range = .00-20.13 years, m = 2.323 years, SD = 3.95 years, and n = 84. One inmate did not know his parole date, which was his soonest important date. Two inmates had a value equal to .00 years because their soonest important date was within one month of the interview date. Of the total sample, 63.5% (n = 54) thought that their chances were good, 20.0% (n = 17) thought that their chances were poor, and 16.5% (n = 14) did not know what their chances were for being released, having their sentence reduced or having their case come to trial again at their soonest important date. Because the chances for release on their mandatory supervision date are good, all inmates who had this date as arising sooner than other dates were assigned the 'chances are good' response (n = 9).

During the interview process, the following incidental information was collected. Of the total sample, 95.3% (n = 81) were able to read (literate) and 4.7% (n = 4) could not (illiterate), 3.5% (n = 3) were observed to be in a condition other than normal (i.e., under the influence of drugs) and 96.5% (n = 82) were not, 74.1% (n = 63) smoked during the interview and 25.9% (n = 22) did not, 77.6% (n =

66) drank coffee or tea during the interview and 22.4% (n = 19) did not, and 2.4% (n = 2) had unescorted temporary absence privileges (i.e., were able to leave the prison unescorted for short time periods) and 97.6% (n = 83) did not.

Descriptive Analysis Of The Psychological General Well-Being Scores

The following is a descriptive analysis of the scores obtained from the Psychological General Well-Being Schedule. By summing the scores on each of the 22 items on the Psychological General Well-Being Schedule (PGWB), one overall score between 0 and 110 can be obtained. The lower the score, the lower the perceived general well-being, the higher the score, the higher the perceived general well-being. The scores ranged from 16-103, with a mean = 64.024, and standard deviation = 19.320. To assign some meaning to this, the scores were grouped into the three broad categorizations of Severe Distress, Moderate Distress, and Positive Well-Being as proposed by Dupuy (1978). These results are reported in Table 4.8.

Based on an 18 item General Psychological Well-Being questionnaire, Dupuy (1978) conducted an intensive analysis of relationships of the overall general well-being index with other variables, including variables from different studies. He then grouped the general well-being scores into the three categories. This categorization can reliably be

Table 4.8

Descriptive Categorization Of Psychological General Well-Being Scores

	Scores	Frequency	Percent	Cumulative Percent
Severe Distress	0-60	37	43.5	43.5
Moderate Distress	61-72	16	18.8	62.4
Positive Well-Being	73-110	32	37.6	100.0
		85	100.0	

applied to the 22 item PGWB for the following reason. The 18 item questionnaire had four questions with 0-10 rating bars. Dupuy developed two questions with 0-5 ratings for each of these four questions resulting in the 22 item questionnaire (H.J. Dupuy, personal communication, March 2, 1991).

The PGWB mean for each PGWB category was calculated with the following results: Severe Distress (m = 46.1622), Moderate Distress (m = 67.6250), and Positive Well-Being (m = 82.8750). One way analysis of variance indicated that there was a significant difference in the PGWB means between the PGWB categories (p = .0000). Results of the Scheffé contrast procedure indicated that the PGWB means of the three groups were all significantly different from each other as expected (p = .05).

Discussion Of Results

Only 37.6% of the inmate sample perceived positive well-being whereas 62.4% perceived themselves to be in moderate to severe distress. Dupuy conducted a study between 1971 and 1975 using the 18 item General Well-Being questionnaire on n = 6913 non-institutionalized Americans aged 25-74 years (1978). From this sample, of which 3,170 subjects were male, 9.7% of the males were in severe distress, 13.1% were in moderate distress, 77.4% were in positive well-being, and the mean well-being score for males was 83.5, with a standard deviation of 16.0 (H.J. Dupuy, personal communication, March 3, 1991). Although this study was conducted approximately 16 years ago in the United States, it gives a general idea of what the non-institutionalized male adult values of general well-being are. In comparison, the proportion of the inmate sample who perceived themselves to be in severe distress is approximately four and one-half times greater than the proportion from the American survey, and the proportion of inmates who perceived themselves to have positive well-being is approximately two times smaller than males with positive well-being in the American study. The general abnormality of prison as a human environment results in a heightened sense of self-consciousness and increased sensitivity to signs of personal deterioration with fear of psychic deterioration (Meisenhelder, 1985). This may explain why such a large percentage of the inmate sample considered themselves to be at a low level of general well-being. Also, the conditions of imprisonment itself seem to adversely affect well-being.

Descriptive Analysis Of The Time Perception Scores

Six time perception attributes were measured with the Time Experience Scales (TES) on the inmate sample, and the attribute of estimation was measured by the Consciousness Index derived by the production method of a time estimation task. The descriptive analysis of the scores obtained from the TES proceeds, followed by the descriptive analysis of the Consciousness Index. The descriptive statistics for all the time perception scores are reported in Table 4.9.

Descriptive Analysis Of Scores From The Time Experience Scales

To compute a value for Meaning, the scores for the designated items were summed and the mean was calculated. The range of means can be from 1-7. The lower the mean, the more negative the evaluation of time, and the higher the mean, the more positive the evaluation of time. A midline value of 4 represents a neutral evaluation of time. To compute a value for Fast Tempo, Slow Tempo, Attention to Death, Future Orientation, and Past Orientation, the scores for the respective items were summed and the mean was calculated. The range of means can be from 1-6. The lower the mean, the less the perception of the attribute, and the higher the mean, the more the perception of the attribute. It was assumed that the midpoint value of 3.5 was the cut off point between more or less perception of the attribute.

The interpretation of the mean scores for each scale of the TES was problematic because it was not known whether to interpret the results at face value, or to determine whether or not the mean scores were significantly different from their midpoint values. This was discussed with Sanders, who developed the TES. Sanders agreed that performing a statistical test to determine whether the mean scores differed significantly from a hypothetical population mean

Table 4.9

Descriptive Statistics For Time Perception Scores (n=85)

Attribute	Mean	SD	Range
Meaning	4.4341	1.0502	1.40-6.40
Fast Tempo	3.8353	0.7250	2.30-5.40
Slow Tempo	3.9682	0.7898	1.60-5.40
Attention to Death	2.9847	1.1070	1.00-5.90
Future Orientation	4.4553	0.7963	1.30-5.90
Past Orientation	4.1753	0.9313	2.00-6.00
Consciousness Index	1.3949	0.6478	0.46-3.55

Note. SD = standard deviation.

(i.e., the midpoint value) would be helpful for interpretation of the data (personal communication, March 4, 1991). It would also provide further evidence to determine whether the face value interpretation of the score is reliable.

The mean for Meaning on the inmate sample was slightly above the midpoint value (i.e., neutral evaluation of time) toward a more positive evaluation of time. It was difficult to interpret whether the score implied a more neutral evaluation of time or a more positive meaning of time by the inmates. At face value, the latter interpretation would be chosen because the mean was greater than the midpoint value of 4. The mean was also significantly different from the hypothetical population mean of 4, that is, the midpoint (2-tailed p = .00024). This indicated that the face value interpretation of the Meaning scale was reliable for interpretation of the data. Therefore, results indicated that the inmate sample tended to have a more positive evaluation of time.

The mean for Fast Tempo indicates that there was a tendency of the inmate sample to view time as passing more quickly over the life time because the mean was greater than the midpoint score of 3.5. Also, the mean was significantly different from the hypothetical population mean of 3.5, that is, the midpoint (2-tailed p = .00008). This indicates that the face value interpretation of the scale mean was reliable for interpretation of the data.

The mean for Slow Tempo indicated that there was a tendency of the inmate sample to view time as passing more slowly in particular personal situations because the mean was greater than the midpoint score of 3.5. Also, the mean was significantly different from the hypothetical population mean of 3.5, that is, the midpoint (2-tailed p = .00000). This indicated that the face value interpretation of the scale mean was reliable for interpretation of the data.

The mean for Attention to Death indicated that there was a tendency for the inmate sample to have less attention to the fact of personal death because the mean was less than the midpoint value of 3.5. Also, the mean was significantly different from the hypothetical population mean of 3.5, that is, the midpoint (2-tailed p = .00005). This indicated that the face value interpretation of the scale mean was reliable for interpretation of the data.

The mean for Future Orientation indicated that there was a tendency for the inmate sample to focus their thoughts and activities more on the future because the mean value for the sample was greater than the midpoint value of 3.5. Also, the mean was significantly different from the hypothetical population mean of 3.5, that is, the midpoint (2-tailed p = .00000). This indicated that the face value interpretation of the scale mean was reliable for interpretation of the data.

Descriptive Analysis Of Consciousness Index

The overall mean of the production times of the time estimation task taken three times for each subject was 34.561 s for the inmate sample. The mean of the time production scores was converted to the Consciousness Index, a ratio of subjective time (40 s) divided by objective time (actual clock time produced). A ratio greater than 1.0 was interpreted as an overestimation because the objective units produced were less than the standard of 40 s, and a ratio less than 1.0 was interpreted as an underestimation because the objective units produced were more than the standard of 40 s. The mean Consciousness Index for the sample was 1.395, with a standard deviation of 0.648 (see Table 4.9). The mean of the Consciousness Index was significantly different from a hypothetical population mean of 1.0 or perfect accuracy (2-tailed $p = .00000$). These results suggest that the subjective time (40 s) was overestimated relative to the objective time produced by the stop watch because the inmates in the sample tended to produce shorter intervals of time objectively than the time they subjectively experienced (40 s) (Newman, 1976; Newman & Gaudiano, 1984; Smith, 1975, 1979; Stewart, 1986; Tompkins, 1980; Tysk, 1984a). The inmates in the sample tended to have shorter internal temporal units relative to clock units.

Discussion Of Consciousness Index Results

Other researchers have reported the general tendency for predominately female samples estimating 40 s (Engle, 1984; Newman, 1976, 1982), and for predominately male samples estimating 15, 30, 60, 180, and 300 s (Feifel, 1957; Stewart, 1986) to produce shorter time intervals than the standard. Hornstein and Rotter (1969) found that the tendency to produce shorter time intervals (2-29 s) came primarily from the females in the sample. However, Smith (1975, 1979) found that all mean production judgments were longer than 40 s in equally distributed male and female samples. Yeudall, Fromm, Reddon, and Stefanyk (1986) found that males significantly produced longer time intervals than the 60 s standard, whereas females significantly produced shorter time intervals. Although the standard time intervals judged were of varying lengths, which may account for the discrepancies, previous research suggests that there may be sex differences. Males may tend to produce longer intervals, and females may tend to produce shorter intervals than the time standard. However, the inmate study results indicated that the male inmates tended to significantly produce shorter intervals than the standard.

Perhaps the prison environment imposes restricted movement and space which may account for the difference. However, previous research also indicates that with decreased movement (Engle, 1984, 1986; Newman, 1976;

Tompkins, 1980), and decreased space (Collett, 1974), subjects tend to a produce significantly longer intervals of the 40 s standard than when there is more movement or space. It would, therefore, be expected that inmates would tend to produce longer time intervals, which is contrary to the study results. A possible reason for the discrepancy is that the studies on decreased movement were conducted on predominately female subjects and comparisons were made between different conditions of movement within the same subjects. The study on space, however, was conducted on an equally distributed male and female sample. Stewart (1986) found that immobility, social isolation, and the interaction of these two variables were significantly related to a trend for producing longer intervals of the 15 s standard in a predominately male sample, although all mean production times for the groups were significantly less than the standard.

Summary Of Descriptive Analysis Of Time Perception Scores

The descriptive analysis of the time perception scores for the inmate sample are summarized. It appears that the time Experience Scales (TES) can reliably be interpreted as having more or less of the scale attribute simply by observing if the mean scale score is greater or less than the midpoint score at face value. The inmate sample as a whole tended to perceive a more positive meaning of time, to view time as passing more quickly over the life time and more slowly in particular personal situations, to have less attention to personal death, to focus their thoughts and activities more on both the future and the past, and to significantly produce shorter time intervals than the 40 s standard. These results seem to indicate that time is perceived in a multidimensional manner. Comparisons of time perception results to the literature, especially those obtained from the TES, are discussed later with the results of further data analysis.

Correlations Between Time Perception Variables

Analysis Of Results

The purpose of this analysis was to determine the relationships between time perception variables. The Pearson product moment correlations are reported in Table 4.10.

The Consciousness Index did not correlate significantly with Meaning (p = .458), Fast Tempo (p = .869), Slow Tempo (p = .985), Attention to Death (p = .405), Future Orientation (p = .071), or with Past Orientation (p = .316). There did not appear to be any relationships between the Consciousness Index and the evaluation of time as positive or negative, the extent to which time is passing quickly over the life time, the extent to which time is passing slowly in particular personal situations, the attention to personal death, the extent to which thoughts and activities are directed to the future, and the extent to which thoughts

Table 4.10

Correlations Between Time Perception Variables (n=85)

	Meaning	Fast	Slow	Death	Future	Past
C.I.	.0815 (.007)	.0182 (.000)	-.0021 (.000)	.0915 (.008)	.1966 (.039)	-.1101 (.012)
Meaning		.0086 (.000)	-.1304 (.017)	-.2849** (.081)	.2804** (.079)	-.1808 (.033)
Fast			.3269** (.107)	.2144* (.046)	.2483* (.062)	.1149 (.013)
Slow				.3658** (.134)	.2775** (.077)	.1666 (.028)
Death					.2042 (.042)	.2708* (.073)
Future						-.0272 (.001)
Past						

Note. 2-tailed $*p<.05$, $**p\leq.01$, C.I. = Consciousness Index, Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention to Death, Future = Future Orientation, Past = Past Orientation, r^2 values are given below each correlation in parenthesis.

and activities are directed to the past.

There was a significant weak negative correlation between Meaning and Attention to Death (p = .008). There was a significant weak positive correlation between Meaning and Future Orientation (p = .009). Meaning did not correlate significantly with Fast Tempo (p = .938), Slow Tempo (p = .234), or Past Orientation (p = .098). Inmates in the sample who had a more positive (negative) meaning of time tended to focus less (more) attention to their personal death, and to focus their thoughts and activities more (less) on the future. The meaning of time did not appear to be related to how quickly time is passing over the life time, how slowly time is passing in particular personal situations, or the extent to which their thoughts and activities are focused on the past.

There were significant weak positive correlations between Fast Tempo and Slow Tempo (p = .002), Attention to Death (p = .049), and Future Orientation (p = .022). Fast Tempo did not correlate significantly with Past Orientation (p = 2.95). Inmates in the sample who tended to perceive time as passing more quickly (less quickly) over the life time, tended to perceive time as passing more slowly (less slowly) in particular personal situations, to direct more (less) attention to personal death, and to focus their thoughts and activities more (less) on the future. The extent to which time is perceived to be passing quickly over the life time did not appear to be related to the extent their thoughts and activities were about the past.

There were significant weak positive correlations between Slow Tempo and Attention to Death (p = .001), and Future Orientation (p = .010). Slow Tempo did not correlate significantly with Past Orientation (p = .128). Inmates in the sample who perceived time as passing more slowly (less slowly) in particular personal situations tended to think more (less) about personal death, and to focus their thoughts and activities more (less) on the future. The extent to which inmates in the sample perceived time as passing slowly in particular personal situations did not appear to be related to the extent their thoughts and activities were focused on the past.

There was a significant weak positive correlation between Attention to Death and Past Orientation (p = .012). Attention to Death did not correlate significantly with Future Orientation (p = .061). Inmates in the sample who perceived less (more) attention to personal death tended to focus their thoughts and activities less (more) on the past. The extent to which they focused on their personal death did not appear to be related to the extent they focused their thoughts and activities on the future.

Future Orientation did not correlate significantly with Past Orientation (p = .805). There did not appear to be a relationship between the extent to which inmates in the sample focused their thoughts and activities to the future with the extent to which they focused their thoughts and activities to the past.

The partial correlations were examined to control for the effects of the other time perception variables on the zero order correlations (see Table 4.11). The differences in magnitude between the zero order and the first order partial correlations were examined to determine if the differences were large enough to not be statistically equivalent. This was done by establishing the confidence intervals for the partial correlations with a probability coverage of .95. If the zero order correlation is contained in the 95% confidence interval for the partial correlation, then the partial correlation and zero order correlation are equivalent. The partial correlation analysis was incorporated in the following discussion.

Discussion Of Results

The Consciousness Index did not correlate significantly with any of the other time perception variables. When the other time perception variables were controlled between the zero order correlations, the partial correlations were also not significant. The differences in the magnitudes between all the zero order correlations and first order correlations were statistically equivalent. Therefore, the other time perception variables had very small influences on the non-relationships between the Consciousness Index and the other

Table 4.11

Influences Of Time Perception Variables On Zero Order Correlations

Zero Order Correlations	Variables Controlled By Partial Correlation						
	x = variable controlled affects zero order correlation						
	C.I.	Meaning	Fast	Slow	Death	Future	Past
C.I.-Meaning			X	X	X	X	X
C.I.-Fast		X		X	X	X	X
C.I.-Slow		X	X		X	X	X
C.I.-Death		X	X	X		X	X
C.I.-Future		X	X	X	X		X
C.I.-Past		X	X	X	X	X	
Meaning-Fast	X			X	X	X	X
Meaning-Slow	X		X		X	X*	X
Meaning-Death *	*		*	*		*	*
Meaning-Future *	*		*	*	*		*
Meaning-Past	X		X	X	X	X	
Fast-Slow *	*	*			*	*	*
Fast-Death *	X	*		X		X	X
Fast-Future *	*	*		X	X		*
Fast-Past	X	X		X	X	X	

Table 4.11 Continued

Zero Order Correlations	Variables Controlled By Partial Correlation						
	x = variable controlled affects zero order correlation						
	C.I.	Meaning	Fast	Slow	Death	Future	Past
Slow-Death *	*	*	*			*	*
Slow-Future *	*	*	X		*		*
Slow-Past	X	X	X		X	X	
Death-Future	X	X*	X	X			X*
Death-Past*	*	*	*	*		*	
Future-Past	X	X	X	X	X		

Note. * significant at .05 level, C.I. = Consciousness Index, Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention to Death, Future = Future Orientation, Past = Past Orientation, Non-applicable partial correlations are blank.

time perception variables (see Table 4.11). The Consciousness Index is based on an objective linear clock-oriented view of time perception, whereas the other time perception scores are based on the subjective view. This may have had some influence on the results.

Feifel (1957) found that subjects who held a more negative outlook on time significantly produced shorter time intervals of 60 and 180 s when compared with those having a positive outlook but did not find a significant relationship when using 30 s. In the inmate sample, a significant correlation of the production of 40 s, as measured by the Consciousness Index, with the meaning of time was not obtained. Perhaps the length of the time interval objectively measured is important in human time perception with some time intervals being more sensitive to the variable.

A significant correlation of the Consciousness Index with Future Orientation in the inmate sample was not obtained. However, Siegman (1961) found a significant positive correlation, in a group of young delinquents and in a comparable group of non-delinquents, of the range of subject's future time perspective with the interval of time estimated by the verbal method of time estimation. The methods of verbal estimation and production can be regarded as measuring the same function inversely, since they have a high negative correlation (Clausen, 1950; Doob, 1971;

Hornstein & Rotter, 1969). Siegman (1961) measured the span of future time orientation, whereas in the inmate study, the degree of dominance of the future was measured. This may account for the different results obtained, although there is evidence to support that both concepts involve the relative investment in the time zones, and that they do correlate with each other (Rappaport et al., 1985).

There appears to be a general consensus in the literature reviewed that results from the production method of time estimation can be interpreted subjectively in terms of fast tempo or slow tempo. Subjects whose time production scores are shorter than the time interval judged have been generally interpreted as having a faster rate of subjective time relative to clock time, having the perception of external time as passing slowly and the perception of more clock time available to them. The opposite interpretations have been given when the subject produces longer time intervals than the time interval judged (Clausen, 1950; Feifel, 1957; Mentzer & Anderson-Schorr, 1986; Newman, 1972, 1976, 1984; Smith, 1972, 1979, 1984; Stewart, 1986; Tompkins, 1980). Barocas (1971) found that the results from the Time Metaphor Test that measured tempo were generally consistent with the results obtained from the production method of time estimation. However, significant correlations of the Consciousness Index with Fast Tempo and Slow Tempo in the inmate sample were not found. Four possible explanations for failing to obtain significant relationships in the inmate sample follow.

1. The interval length of 40 s to measure objectively may not be sensitive to the variables. The study results obtained by Feifel (1957), as previously discussed, seem to imply this. Barocas (1971) found that subjects who prefer to conceptualize time in slow or static terms (naturalist-passive) significantly produced longer time intervals of 60 and 180 s, however, a significant finding was not found with regard to 30 s.

2. The Fast Tempo scale and the Slow Tempo scale, as measured by the Time Experience Scales (TES), may not be valid indicators of tempo, and therefore, may not reflect the same explanatory construct as that interpreted from the production method of estimating time. This is based on the assumption that results from the production method of time estimation can be validly interpreted subjectively in terms of tempo as many researchers have done in the literature reviewed. Coefficient alphas of .5753 for Fast Tempo, and .7286 for Slow Tempo were obtained for the inmate sample. However, Sanders (1986) obtained much higher alpha coefficients of .80 for Fast Tempo and .77 for Slow Tempo on a sample of males from the general population in the United States. The Fast Tempo scale may not be as precise a measure for a prison sample as compared to those from the general population which would decrease the validity of its

use on inmates. However, the Slow Tempo scale appears to be a fairly reliable measure for the inmate sample.

3. The TES may be measuring a different concept of fast tempo and slow tempo than that derived from the subjective interpretation of tempo from the production method. According to the TES, Fast Tempo measures the extent to which time is passing quickly over the life time, and Slow Tempo measures the extent which time is passing slowly in particular personal situations. This implies that retrospective time judgments are being made. However, the production method of time estimation is a direct judgment of a time interval in the present. Interpretations from retrospective time judgments may not apply to the direct judgment of an interval of clock time (Smith, 1975). According to the TES, tempo is viewed in a multidimensional manner, in terms of fast tempo and slow tempo. In other words, an individual may perceive time as passing more quickly (less quickly) over the life time and at the same time perceive time as passing more slowly (less slowly) in particular personal situations. However, by interpreting tempo from the time production method of estimation, a bipolar linear view is assumed in that an individual has either a fast tempo or a slow tempo, but not both. Therefore, because there are conceptual distinctions between the measures on the TES and the time production method, the two measures may not be measuring the same construct. This

may account for a significant relationship not being found between the different methods of measurement.

The mean Consciousness Index for the inmate sample was 1.3949, indicating a general tendency for the inmate sample to produce shorter intervals than the judged interval, which may be interpreted as inmates having faster subjective rates and as perceiving external time to be passing slowly. Also, a mean score of 3.8353 and 3.9682 were obtained for Fast Tempo and Slow Tempo respectively in the inmate sample by the TES. This indicates that time tends to be perceived by the inmates as passing generally more quickly over the life time and generally more slowly in particular personal situations. Individuals with fast subjective rates, as indicated in the inmate sample by the production method, may be alert to many events within themselves as compared to external events and therefore, in the present, external or clock time drags. However looking back, these same individuals may feel that many events pass very quickly (Strumph, 1987), as indicated by the measurement of Fast Tempo on the TES. Therefore, although significant correlations were not found between the different methods of measurement, there does appear to be some consistency. Be that as it may, time estimation, or how much time seems to have passed, and tempo, or speed of time passage, are considered to be conceptually distinct in the inmate study. Therefore, interpreting time estimation results in terms of tempo is not conceptually correct for this study.

4. Interpreting results that are derived from the time production method of estimation in a subjective manner may not be valid. It is not known how justified we are in placing emphasis on personal time when using measures of temporal experience that rely on clock time because emphasis on clock time may not be a valid indicator of subjective time (Moore, 1982; Newman, 1976, 1982). Many investigators have reported that the ability to estimate time intervals is intact in spite of the subjective feeling that it is slow or fast, therefore, the distinction between personal time and objective clock time may be important. The mechanistic clock-oriented time reflects a learned response to temporal experience that is not necessarily reflective of subjective experience (Clausen, 1950; Hawkins et al., 1988; Kitamura & Kumar, 1984; Tysk, 1984a).

Results indicate that 8.1% of the variance in Attention to Death is predictable from knowing Meaning, 1.37% of the variance is predictable from knowing Slow Tempo, and 7.3% of the variance is predictable from knowing Past Orientation. These variances can also be interpreted in the reverse direction (see Table 4.10). The partial correlations between these zero order correlations with the other time perception variables were also significant, and all the differences in the magnitudes between the zero order and first order correlations were statistically equivalent.

Therefore, the relationships of Attention to Death with Meaning, Slow Tempo, and Past Orientation can not be explained by knowing the other time perception variables (see Table 4.11).

Humans often abhor and reject the possibility of personal death (Anderson-Schorr, 1983). This is indicated by the general tendency for the inmate sample to have less attention to their personal death (m = 2.9847). Therefore, by paying more attention to personal death, a more negative meaning of time may be produced, and paying less attention to it may produce a more positive meaning of time. This is indicated by the negative correlation of Attention to Death with Meaning in the inmate sample. Perhaps, contemplating the possibility of dying while in prison, rather than outside of prison, would also involve a more negative meaning of time. With more attention to personal death, it is expected that there would be a greater focus on looking back at the past to review one's life (Kübler-Ross, 1975), which is indicated by the positive correlation of Attention to Death with Past Orientation. Making sense out of what we did, are doing, and plan to do would naturally arise when contemplating personal death (Kübler-Ross, 1975).

Results indicate that 4.6% of the variance in Attention to Death is predictable from knowing Fast Tempo or vice versa (see Table 4.10). The partial correlation, when controlling for Meaning was also significant, and the difference in magnitude between the zero order and first order correlations were statistically equivalent. Therefore, the relationship of Attention to Death with Fast Tempo can not be explained by knowing Meaning. However, the partial correlations, when controlling for the other time perception variables were not significant, and the differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the relationship of Attention to Death with Fast Tempo is influenced to a very small extent by its correlations with the Consciousness Index, Slow Tempo, Future Orientation, and Past Orientation (see Table 4.11). The correlations indicate that the more attention given to personal death, the faster time tends to have passed over the life time and the slower it tends to pass in particular personal situations in the inmate sample. Perhaps when seeing how quickly time has passed over the life time, an adaptive strategy is unconsciously employed to slow down the passage of time in particular personal situations in order to delay the fact of personal death.

Because personal death is seen as being in the future, and because it is a reminder that our time is limited so we better accomplish our purpose on earth before it runs out (Kübler-Ross, 1975), a positive correlation of Attention to Death with Future Orientation would be expected. Although the correlation obtained was in the expected direction, it was not significant (see Table 4.10). However, the partial correlations, when controlling for Meaning and Past Orientation, were both significant, and when controlling for the Consciousness Index, Fast Tempo, and Slow Tempo, were not significant. The differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, all the controlled time perception variables have very small effects in moderating the non-relationship between Attention to Death and Future Orientation (see Table 4.11). Because the awareness of personal death gives time its special significance to humans (Anderson-Schorr, 1983; Sanders, 1986), this attribute may enhance the breadth of human time perception and therefore be reflected throughout most of the time perception attributes.

The constant anticipation of time, the repetition of meaningless activities, and the boredom when imprisoned should result in time being perceived as passing slowly (Meisenhelder, 1985), yet significant correlations of Meaning with Fast and Slow Tempo were not obtained (see Table 4.10). When analysing the relationship of Meaning with Fast Tempo, the partial correlations were also not significant when controlling for the other time perception variables. When analysing the relationship of meaning with Slow Tempo, all the partial correlations, except for Future Orientation, were not significant when controlling for the

Other time perception variables. The differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, Future Orientation is definitely influencing the non-relation of Meaning with Slow Tempo, and all the other time perception variables have very small effects in moderating the relationship of Meaning with Fast Tempo and with Slow Tempo (see Table 4.11).

Perhaps the heightened attention to how time is passing in prison results in more effort to making prison time to pass. The overall mean of Slow Tempo (m = 3.9682) suggests that inmates in the sample generally tended to perceive time as passing more slowly in particular personal situations. Inmates may attempt to speed the passage of time by becoming fully attentive to present activities and by performing certain activities to obtain a sense of progression through time (Meisenhelder, 1985), and consequently to obtain some sort of meaning of time. This may counteract the negative evaluation of time and the feeling of time passing slowly. In this way they adapt, or come to know how to 'do time' (Meisenhelder, 1985). The overall mean of Fast Tempo (m = 3.8353) indicates a general tendency for inmates in the sample to perceive time as passing more quickly over the life time. Perhaps anti-social activities like prison riots, property destruction, inmate fights, and self-mutilation may be adaptive attempts to obtain a sense of progression through time and some meaning to time.

"Without a definite sense of an attainable future, time is likely to be experienced as meaningless, empty, and boring." (Meisenhelder, 1985, p. 45). Therefore, it is assumed that an inmate may focus less on this type of future. This is consistent with the inmate sample results whereby 7.9% of the variance in Meaning is predictable from knowing Future Orientation or vice versa (see Table 4.10). With a more negative meaning of time, more thoughts and activities tend to be directed less on the future. If an inmate focuses more on the future, it may be assumed that the future may hold a more positive meaning. The partial correlations, when controlling for the other time perception variables, were also significant and the differences in their magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the relationship of Meaning with Future Orientation can not be explained by knowing the other time perception variables (see Table 4.11). However, if an inmate focuses more on the future, as is reflected in this overall tendency of inmates in the sample to do (m = 4.4553), the flow of time inside the prison will pass more slowly (Meisenhelder, 1985) which is reflected in the significant positive correlation of Future orientation with Slow Tempo. The results indicate that 7.7% of the variance in Future Orientation is predictable from knowing Slow Tempo or vice versa (see Table

4.10). The partial correlations were also significant when controlling for the Consciousness Index, Meaning, Attention to Death, and Past Orientation, but not significant when controlling for Fast Tempo. The differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the Consciousness Index, Meaning, Attention to Death, and Past Orientation did not influence the relationship of Slow Tempo with Future Orientation, but Fast Tempo influenced the relationship to a very small extent (see Table 4.11).

Future Orientation did not correlate significantly with Past Orientation in the inmate sample (see Table 4.10). The partial correlations were also not significant when controlling for the other time perception variables, and the differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the other time perception variables do influence the non-relationship of Future Orientation with Past Orientation to a very small extent (see Table 4.11). There is a general overall tendency for the inmates in the sample to focus more attention to the past, rather than less attention (m = 4.1753). Similar results were found in a study by Crandall and Reimanis (1976). Criminal activity was significantly negatively related to how committed they were to socially useful goals (i.e., social interest), and the inmates had significantly lower social interest. Lack of social interest was related to negative feelings about one's personal past (1976). However, in the inmate sample, Meaning did not correlate significantly with Past Orientation. The partial correlations were also not significant when controlling for the other time perception variables and the differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the other time perception variables influence the non-relationship of Meaning with Past Orientation to a very small extent (see Table 4.11).

Past Orientation did not correlate with Fast or Slow Tempo in the inmate sample (see Table 4.10). The partial correlations were also not significant when controlling for the other time perception variables, and the differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the other time perception variables had very small influences on the non-relationship of Past Orientation with Fast Tempo and of Past Orientation with Slow Tempo. None of the empirical works reviewed specifically dealt with the relationship of past orientation with tempo, other than in an age related fashion. Therefore, comparisons with the literature could not be made. Intuitively, it would make sense that there should be a relationship of past orientation with fast and slow tempo because the perception of how quickly time went by in the life time or how slowly it went by in personal particular situations, would be equated with the past.

Kuhlen and Monge (1968) did not find a significant correlation of future orientation with sensed speed of time passage in graduate students whereas in the inmate study, 6.2% of the variance in Future Orientation is predictable from knowing Fast Tempo or vice versa (see Table 4.10). The partial correlations were also significant when controlling for the Consciousness Index, Meaning, and Past Orientation, but did not correlate significantly when controlling for Slow Tempo and Attention to Death. The differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the relationship of Future Orientation with Fast Tempo cannot be explained by knowing the Consciousness Index, Meaning and Past Orientation, but Slow Tempo and Attention to Death have very small influences on the relationship.

Results indicate that 10.7% of the variance in Fast Tempo is predictable from knowing Slow Tempo or vice versa in the inmate sample (see Table 4.10). The partial correlations were also significant when controlling for the other time perception variables, and the differences in the magnitudes between the zero order and first order correlations were all statistically equivalent. Therefore, the relationship of Fast Tempo with Slow Tempo cannot be explained by the other time perception variables (see Table 4.11). This positive correlation detracts from the bipolar view of tempo, to the multidimensional point of view. Although time is perceived to be passing more quickly (less quickly) over the life time, the inmates in the sample tended to perceive time as passing more slowly (less slowly) in personal particular situations.

Summary Of Findings

In summary, the results have only been suggestive. There may be other variables that account for the relationships obtained. All significant correlations were weak. However, these weak correlations between the time perception scores do lend support to the distinctness of the attributes, thereby indicating that human time perception does indeed have a multidimensional nature. The concepts fast and slow tempo, have generally been viewed in the literature as bipolar aspects of one attribute, tempo. The concepts of past orientation and future orientation have also been generally viewed in the literature as bipolar aspects of one attribute, temporal orientation. The results of this study, however, seem to indicate that fast tempo, slow tempo, past orientation, and future orientation are all distinct attributes of time perception, and the perception of one attribute does not exclude the perception of the other. The study results also seem to indicate that objective time, or the judgment of chronometric time passage by the production method, and subjective time seem to be very different kinds of time perception judgments. The study results also seem to indicate that the awareness of personal death and meaning are intricately involved in human time perception. When controlling for all the other time perception variables, the only significant zero order correlations that were not influenced by every other controlled variable were Meaning-Attention to Death, Meaning-Future Orientation, Fast Tempo-Slow Tempo, Slow Tempo-Attention to Death, and Attention to Death-Past Orientation. These relationships, therefore do appear to affect one another without the influence of every other time perception variable. When the correlations between time perception variables have been affected by other time perception variables, the influences have been very small.

Analysis Of PGWB Categories With Time Perception Variables

The following is an analysis of the PGWB categories with the time perception variables. The PGWB scores were categorized into Severe Distress (0-60), Moderate Distress (61-72) and Positive Well-Being (73-110). A comparison of these groups to the time perception scores was done by one way analysis of variance. One way analysis of variance determined that there was a significant difference in the means for Meaning and Past Orientation between the PGWB categories. The other time perception scores did not have a significant difference in their means between the PGWB categories (see Table 4.12). The Scheffé contrast procedure was used to determine if any of the groups differed significantly at the .05 level of significance (see Table 4.12). The mean of Meaning in the Severe Distress group was significantly different from the Moderate Distress group and the Positive Well-Being group. The mean of Meaning in the Moderate Distress group and the Positive Well-Being group were not significantly different from each other. Inmates from the sample in severe distress had a significantly lower mean for the meaning of time compared to the other two groups. Therefore, they tended to have a significantly less positive evaluation or meaning of time compared to inmates in moderate distress or inmates with positive well-being. The mean of Past Orientation in the Severe Distress group was significantly different from the Positive Well-Being group, but not significantly different from the Moderate Distress group. The mean of Past Orientation in the Moderate Distress group and the Positive Well-Being group did not differ significantly. The Severe Distress group had a significantly higher mean on Past Orientation compared to the Positive Well-Being group. Inmates in the sample who were in severe distress tended to significantly focus their thoughts and activities more on the past compared to those with positive well-being.

Table 4.12

One Way Analysis Of Variance Of Time Perception And PGWB Categories

Time	1. Severe	2. Moderate	3. Positive		
	Mean	Mean	Mean	ANOVA p-value	Scheffé Contrast
Meaning	3.8378	4.5125	5.0844	.0000*	1≠2, 1≠3
Fast	3.8189	3.9188	3.8125	.8796	
Slow	4.0865	4.1000	3.7656	.1856	
Death	3.2622	3.0312	2.6406	.0641	
Future	4.4351	4.2250	4.5938	.3157	
Past	4.5432	4.2812	3.6969	.0004*	1≠3
C.I.	1.4700	1.1494	1.4309	.2375	

Note. n = 85, Severe = Severe Distress, Moderate = Moderate Distress, Positive = Positive Well-Being, Fast = Fast Tempo, Death = Attention to Death, Future = Future Orientation, Past = past Orientation, C.I. = Consciousness Index, ANOVA p-values $\leq .05$ are marked with an *, PGWB = Psychological General Well-Being.

Correlations Of PGWB Variables With Time Perception Variables

Analysis Of Results

The purpose of this analysis was to determine the relationships of the PGWB variables with the time perception variables in the inmate sample. The Pearson product moment correlations of the PGWB Index scores and the PGWB scale scores with the time perception scores are reported in Table 4.13. It should be noted that the items for Anxiety and Depressed Mood are scored such that the lower the score, the more the anxiety and depressed mood, and the higher the score, the less the anxiety and depressed mood.

There was a significant moderate positive correlation of the PGWB Index with Meaning, and significant weak negative correlations of the PGWB Index with Attention to Death and Past Orientation. The PGWB Index did not correlate significantly with the Consciousness Index, Fast Tempo, Slow Tempo, or Future Orientation. Inmates in the sample who tended to perceive a higher (lower) level of general well-being tended to have a more positive (negative) meaning of time, to have less (more) attention to their personal death, and to focus their thoughts and activities less (more) on the past. There did not appear to be relationships of how inmates in the sample tended to perceive their general level of well-being with the

Table 4.13

Correlations Of PGWB Variables With Time Perception Variables

	Time Perception Variables						
PGWB	C.I.	Meaning	Fast	Slow	Death	Future	Past
Anxiety	-.0972 (.376) (.009)	.4417** (.000) (.195)	-.0119 (.914) (.000)	-.2247* (.039) (.050)	-.3252** (.002) (.106)	.0267 (.809) (.001)	-.4329** (.000) (.187)
Depressed	-.0250 (.821) (.001)	.5983** (.000) (.358)	.0248 (.822) (.001)	-.1244 (.256) (.015)	-.3457** (.001) (.120)	.2086 (.055) (.044)	-.3648** (.001) (.133)
Positive	-.0423 (.701) (.002)	.6265** (.000) (.393)	.0624 (.571) (.004)	-.0472 (.668) (.002)	-.1673 (.126) (.028)	.2158* (.047) (.047)	-.2015 (.064) (.041)
Control	-.0101 (.927) (.000)	.4248** (.000) (.180)	.1502 (.170) (.023)	-.1252 (.253) (.016)	-.2080 (.056) (.043)	.2088 (.055) (.044)	-.2523* (.020) (.064)
Health	.0749 (.496) (.006)	.4028** (.000) (.162)	-.0863 (.432) (.007)	-.1075 (.328) (.012)	-.2584* (.017) (.067)	.0720 (.513) (.005)	-.2797** (.010) (.078)

Table 4.13 (Continued)

	Time Perception Variables						
PGWB	C.I.	Meaning	Fast	Slow	Death	Future	Past
Vitality	-.0683 (.535) (.005)	.5565** (.000) (.310)	-.0626 (.569) (.004)	-.1874 (.086) (.035)	-.2188* (.044) (.048)	.2461* (.023) .061)	-.2134* (.050) (.046)
Index	-.0470 (.669) (.002)	.6493** (.000) (.422)	.0112 (.919) (.000)	-.1820 (.096) (.033)	-.3282** (.002) (.108)	.1989 (.068) (.040)	-.3806** (.000) (.145)

Note. 2-tailed p-values are given below each correlation in parentheses, *$p \leq .05$, **$p \leq .01$, N = 85, r^2 values are given below each p-value in parentheses, C.I. = Consciousness Index, Depressed = Depressed Mood, Positive = Positive Well-Being, Control = Self-Control, Health = General Health, Index = PGWB Index, Psychological General Well-Being, the lower the scores for Anxiety and Depressed Mood, the more the anxiety and depressed mood, and the higher the scores, the less the anxiety and depressed mood.

Consciousness Index, the extent to which time passes quickly over the life time and slowly in particular personal situations, or with the extent their thoughts and activities were focused on the future.

The PGWB scales did not correlate significantly with the Consciousness Index or with Fast Tempo. There did not appear to be relationships of how the inmates in the sample tended to perceive their levels of anxiety, depressed mood, positive well-being, self-control, general health, or vitality with the Consciousness Index or with the extent to which time passes quickly over the life time.

There were significant moderate positive correlations of every PGWB scale with Meaning. Inmates in the sample who tended to perceive levels of less (more) anxiety, less (more) depressed mood, more (less) positive well-being, more (less) self-control, better (worse) general health, and more (less) vitality tended to have a more positive (negative) meaning of time.

There was a significant weak negative correlation of Anxiety with Slow Tempo, but the other PGWB scales did not correlate significantly with Slow Tempo. Inmates in the sample who tended to perceive less (more) anxiety tended to perceive time as passing less (more) slowly in particular personal situations. There did not appear to be relationships of how inmates in the sample tended to perceive their levels of depressed mood, positive well-being, self-control, general health, and vitality with the extent to which time passes slowly in particular personal situations.

There were significant weak negative correlations of Anxiety, Depressed Mood, General Health and Vitality with Attention to Death. Positive Well-being and Self-Control did not correlate significantly with Attention to Death. Inmates in the sample who tended to perceive levels of less (more) anxiety, less (more) depressed mood, better (worse) general health, and more (less) vitality tended to have less (more) attention to personal death. There did not appear to be relationships of how inmates in the sample tended to perceive their levels of positive well-being or self-control with attention to their personal death.

There were significant weak positive correlations of Positive Well-Being with Future Orientation, and of Vitality with Future Orientation, but the other PGWB scales did not correlate significantly with Future Orientation. Inmates in the sample who tended to perceive levels of more (less) positive well-being, and more (less) vitality tended to focus their thoughts and activities more (less) on the future. There did not appear to be relationships of how inmates in the sample tended to perceive their levels of anxiety, depressed mood, self-control, or general health with the extent that they tended to focus their thoughts and activities on the future.

There was a significant moderate negative correlation of Anxiety with Past Orientation. There were significant weak negative correlations of Depressed Mood, Self-Control, General Health, and Vitality with Past Orientation. Positive Well-Being did not correlate significantly with Past Orientation. Inmates in the sample who tended to perceive levels of less (more) anxiety, less (more) depressed mood, more (less) self-control, better (worse) general health, and more (less) vitality tended to focus their thoughts and activities less (more) to the past. There did not appear to be a relationship of how inmates in the sample tended to perceive their level of positive well-being with the extent they tended to focus their thoughts and activities to the past.

Discussion Of Results

Results indicated that 42.2% of the variance in the PGWB Index is predictable from knowing Meaning or vice versa. Meaning also accounted for 19.5% of the variance in Anxiety, 35.8% of the variance in Depressed Mood, 39.3% of the variance in Positive Well-Being, 18.0% of the variance in Self-Control, 16.2% of the variance in General Health, and 31.0% of the variance in Vitality. The variances can also be interpreted in the reverse direction (see Table 4.13). The more (less) the anxiety and depressed mood, and the lower (higher) the perceived levels of positive well-being, self-control, general health, vitality, and overall subjective general well-being, the more the inmates in the sample tended to experience a negative (positive) meaning of time. Alternatively, the more negative (positive) the meaning of time the inmates in the sample tended to experience, the more (less) anxiety and depressed mood, and the lower (higher) the perceived levels of positive well-being, self-control, general health, vitality, and overall subjective general well-being tended to be experienced.

Prison imposes a discomfort of waiting, a sense of time as a burden, and a feeling of sameness and predictable repetition of meaningless routines. The time that must pass before the inmate can go free hangs ominously over every prison experience, giving a feeling that time spent in prison is wasted or taken away from the inmate's life (Meisenhelder, 1985). This may result in a negative evaluation or meaning of time, which may produce a lower perception of subjective well-being. However, if the meaning of time is perceived as being more positive to begin with, then a higher level of subjective well-being may be experienced. Alternatively, a lower (higher) perception of well-being may result in time being experienced as more negative (positive).

Some inmates in the sample incidently commented that they "do not want to and try not think about time", which appear to reflect a negative meaning of time for them. This may explain why night and sleeping become extremely significant times for some inmates because in sleep time passes normally and effortlessly. Paradoxically, the common inmate problem of insomnia may result from the increased importance which is attached to sleep (Meisenhelder, 1985). The expressed desire for sedatives and narcotics, and the illicit drug use may be attempts to make the time pass effortlessly and more quickly (Beck, 1983; Goldstone et al, 1958; Hicks et al., 1984). These all may be adaptive strategies to deter from a negative evaluation of time so that a better feeling of subjective well-being is obtained. Alternatively, these may also be adaptive strategies employed by some inmates to deter from a lower level of overall subjective well-being in response to the feelings of anxiousness, depression, low self-control, poor general health and/or low vitality which would detract from the negative evaluation (meaning) of time. Other socially acceptable and unacceptable adaptive strategies, such as activity involvement, seeking professional assistance, self-mutilation, and prison riots, may be employed to obtain a more positive meaning of time, and a higher perception of well-being. In doing so, the inmates learn how to 'do time' and lessen the 'hard time' that may be experienced (Meisenhelder, 1985). Because the mean in the inmate sample for Meaning (m = 4.4341) suggests that, overall, the inmate sample tended to experience time as more positive, perhaps they have adapted to some extent. Perhaps because the inmates in the sample, who are more severely distressed, also have a significantly less positive meaning of time compared to those in the moderate distress and positive well-being groups (see Table 4.12), the more severely distressed inmates are experiencing more 'hard time' and have not adapted as well.

The PGWB Index did not correlate significantly with Fast or Slow Tempo in the inmate sample (see Table 4.13). Because both prisoners and the elderly are often regarded as populations with known time 'on their hands', a comparison with a study of institutionalized and community dwelling elderly (Baum et al, 1984) is made. Those elders who perceived time as passing more quickly were significantly more healthy emotionally than their counterparts who subjectively saw time as passing more slowly. This finding is contrary to the inmate study results. Every PGWB scale did not correlate significantly with Fast Tempo. Five percent of the variance in Anxiety can be predicted from knowing Slow Tempo or vice versa (see Table 4.13). In the study of the elderly (Baum et al, 1984), faster time perception was associated with less depression, and depressed elders viewed time as moving more slowly, whereas, in the inmate study, Depressed Mood was not related to Fast or Slow Tempo. Somatic complaints were not significantly related to tempo (Baum et al, 1984), which was consistent with the results from the inmate study, in that, General

Health was also not related to Fast or Slow Tempo. It may be assumed that the concept of somatic complaints is similar to the concept of General Health (See Appendix 1).

Contrary to the findings in the inmate study, another study (Hawkins et al, 1988) indicated that for subjects in induced depression, time passed significantly more slowly compared to subjects in induced neutral and elated affective states. Contrary to the findings in the inmate study, Kuhlen and Monge (1968) obtained significant positive correlations between ratings of happiness and excitement in living and sensed speed of time. It may be assumed that the concepts of happiness and excitement in living are similar to the concept of Positive Well-Being (see Appendix 1).

Differences in the results between these studies and the inmate study may be due to the different conceptualizations and measurements of tempo and depression. For example, in the other studies, tempo was conceptualized and measured in a bipolar manner, whereas, in the inmate study, tempo was conceptualized and measured in a multidimensional manner. Also, Fast Tempo, as measured in the inmate study, had a low alpha coefficient (.5753) indicating that it may not be as reliable a measure for an inmate sample, but the alpha coefficient for Slow Tempo (.7286) appears to be fairly reliable. Sex differences in the samples may also be operating. It may be that an inmate sample is different from other samples regarding their perception of fast and slow tempo in relation to their perception of well-being.

There is a general discomfort and negative connotation given to time when prison time seems to move very slowly, resulting in the inmate experiencing 'hard' time (Meisenhelder, 1985). It would be expected that this would lead to a lower subjective feeling of well-being, which is not reflected in the results from the inmate sample (see Table 4.13). However, some inmates incidently commented that they felt like they were "in limbo" and were often "not aware of time passing". Perhaps this is an adaptive strategy employed to obtain a better sense of well-being. Therefore, the unawareness of time passage, rather than the awareness of time passage, as in fast and slow tempo, may be related to subjective well-being in an inmate sample. This contention is supported by the proposition by Newman (1982), who suggested that as consciousness (i.e., health) increases, an individual moves in the direction of the unawareness of time (i.e., timelessness). The means of Fast and Slow Tempo for the inmates in the Severe Distress, Moderate Distress, and Positive Well-Being groups were also not significantly different (see Table 4.12). This lends support to the proposition that the awareness of time passing quickly or slowly may not be as important to the perception of well-being as the unawareness of how time is passing by inmates in the sample. However, the specific measurement of subjective Anxiety may be associated with Slow Tempo in inmates, rather than the overall general perception of psychological well-being.

A significant correlation between the PGWB Index and Future Orientation was not obtained in the inmate sample (see Table 4.13). Without a definite sense of an attainable future for most prison inmates (Meisenhelder, 1985), focusing thoughts and activities to a greater or lesser extent on the future may not influence their subjective well-being. However, Future Orientation accounts for 4.7% of the variance in Positive Well-Being, and 6.1% of the variance in Vitality. These variances can also be interpreted in the reverse direction (see Table 4.13). These results are contrary to those obtained by Crandall and Reimanis (1976), who did not obtain a significant relationship between happiness and satisfaction with future orientation in a sample of students. It may be assumed that the concepts, happiness and satisfaction, are similar to the concept of Positive Well-Being (see Appendix 1). Different conceptualization and measurement of future orientation between the two studies may account for the different results. It may be that an inmate sample is different regarding their perception of future orientation in relation to their perception of well-being. The means of Future Orientation for the inmates in the Severe Distress, Moderate Distress, and Positive Well-Being groups were also not significantly different (see Table 4.12). This lends support to the proposition that future orientation may not be important to the perception of general well-being by inmates in the sample. However, the specific measurement of subjective Positive Well-Being and Vitality may be associated with future orientation in inmates, rather than the overall general perception of psychological well-being.

Results indicate that 14.5% of the variance in the PGWB Index is predictable from knowing Past Orientation or vice versa (see Table 4.13). The inmates in the sample who had a higher (lower) level of perceived general well-being tended to focus their thoughts and activities less (more) on the past. Perhaps inmates experience more negative feelings about their personal past, so therefore, if they focus more (less) on their past, they would Perceive a lower (higher) level of well-being. Intuitively, this makes sense, because all inmates have been accused and convicted of committing a crime in the past. The personal crisis involved with this process would result in significant negative memories about the past. The extent of dwelling upon the past therefore, would affect their perception of general well-being.

Past Orientation accounts for 18.7% of the variance in Anxiety, 6.4% of the variance in Self-Control, 7.8% of the variance in General Health, and 4.6% of the variance in Vitality. These variances can also be interpreted in the reverse direction. Past Orientation did not correlate significantly with Positive Well-Being (see Table 4.13). However, Crandall and Reimanis (1976) did find a significant weak negative correlation between general happiness and satisfaction with present lives and past orientation. It may be assumed that the concepts happiness and satisfaction with present lives are similar to the concept of Positive Well-Being (see Appendix 1).

Past Orientation also accounts for 13.3% of the variance in Depressed Mood or vice versa in the inmate sample (see Table 4.13). Beiser (1987) obtained similar results. Refugees displaying a pattern of nostalgia (past dominance) were significantly more depressed early in their resettlement period in Canada compared to those displaying other dominance patterns, and those Vancouverites displaying a pattern of nostalgia were also significantly more depressed compared to those displaying other dominance patterns. There was a statistically significant reduction in depression scores (i.e., less depression) for refugees between the time that they first came to Canada and two years later. This suggests that they may have adapted to their new environment. Changes in time dominance were significantly related to changes in depression in the refugees in that those who shifted from any other orientation into a pattern of nostalgia reported less reduction in their depression scores (i.e., more depression) than any other group. This suggests that the more past orientated subjects were more depressed. The inmates in the sample who are in the Severe Distress Group had a significantly higher mean on Past Orientation compared to the positive Well-Being group (see Table 4.12) so were more past oriented. Perhaps the severely distressed inmates in the sample were having a more difficult time adapting to the prison environment. Inmates and refugees may be more similar samples which may account for the similar results obtained, because both samples were in environments that were different than the environments they were in before hand.

Results indicate that 10.8% of the variance in the PGWB Index is predictable from knowing Attention to Death or vice versa in the inmate sample (See Table 4.13). Those inmates in the sample who perceived themselves to be at a higher (lower) level of general well-being tended to have less (more) attention to personal death. Death is seen as a negation of being, therefore to maintain the integrity of the human field, death must be overcome or denied (Anderson-Schorr, 1983). Attention to Death accounts for 12.0% of the variance in Depressed Mood, 6.7% of the variance in General Health, and 4.8% of the variance in Vitality. These variances can also be interpreted in the reverse direction (see Table 4.13). The more (less) attention to personal death the inmates in the sample had, the more (less) they tended to perceive themselves to be depressed, to have lower (higher) general health, and to have less (more) vitality. The thought of personal death produces fear and anxiety (Anderson-Schorr, 1983). This is consistent with the results from the inmate sample in that Attention to Death accounts for 10.6% of the variance in Anxiety or vice versa (see Table 4.13). The more (less) the perceived anxiety, the more (less) the attention to personal death the inmates in the sample tended to have. Because both Attention to Death and Meaning were related to subjective well-being, the anticipation of death may connote a negative meaning of time which is reflected in the significant negative correlation of Meaning and Attention to Death in the inmate sample.

The mean of Attention to Death (m = 2.9847) in the inmate sample suggests that, as a whole, the inmate sample tended to focus significantly less attention to their personal death. The mean of the PGWB Index (m = 64.0235) in the inmate sample suggests that, as a whole, the inmates in the sample tended to have some distress in their general well-being. Also, significant differences in the means of Attention to Death between those in severe distress, moderate distress, and positive well-being were not obtained (see Table 4.12), perhaps because all groups tended to focus significantly less attention to their personal death, and because, overall, most of the inmates in the sample were in some distress regarding their general well-being.

A significant relationship of the PGWB Index with the

Consciousness Index was not obtained in the inmate sample (see Table 4.13). A discussion of this result follows. In two separate studies, Engle (1984, 1986) did not find a significant relationship of self-assessment of health with the length of the production of 40 s in elderly females, which was consistent with the inmate sample results. Nojima et al, (1987) found that Japanese inpatients who suffered more difficulties in the performance of their activities of daily living obtained a significantly higher Consciousness Index than the employees, who suffered significantly less difficulty. However, significant differences were not obtained between the groups of their perceived level of health with the Consciousness Index. A significant relationship of perceived level of psychological general well-being with the Consciousness Index was also not obtained in the inmate study. It therefore appears that the subjective perception of well-being or health may not be related to how people estimate an interval of time according to the production method.

Newman (1979) postulated that perceived temporal duration might be helpful in assessing a person's health. Based on the work of Bentov (1977), Newman (1979) theorized that the Consciousness Index may reflect the wholeness or health of an individual. Newman (1982, 1984, 1986) later suggests that the Consciousness Index involves a comparison to clock time, and that perhaps this ratio should not include a comparison to clock time because it emphasizes a physical, linear view of time. Fitzpatrick (1980) postulated that non-linear temporal experiences may be more indicative of an individual's wholeness. In Newman's commentary to the study done by Nojima et al (1987), she suggests that the method of measuring subjective time be modified because the measurement used dichotomizes wellness-illness, which is not conceptually consistent with Newman's paradigm of health. M.A. Newman (personal communication, March 23, 1990) stated that the use of the Psychological General Well-Being Schedule to measure subjective well-being is not equated with her conceptualization of health because quantifying well-being places it on the wellness-illness continuum, a different paradigm of health. Therefore, these may be possible explanations as to why a significant relationship of the PGWB Index with the Consciousness Index was not obtained in the inmate sample.

Every PGWB scale, including Depressed Mood, did not correlate significantly with the Consciousness Index in the inmate sample (see Table 4.13). Similar results were obtained in a study by Kitamura and Kumar (1983) because a significant difference in the production of 30 s between depressed patients and those not depressed was not obtained. In another study (Hawkins et al, 1988), significant differences in the verbal estimation of 4 min and 13 min between subjects with induced depressed, neutral, and elated affective states also were not obtained. However, Newman (1984) found that elderly females who were depressed tended to produce longer intervals of 40 s compared to those who were not depressed. Tysk (1984a) also found that those with major depression with melancholia and bipolar depression tended to produce significantly longer time intervals (10-30 s) and the manic depressives tended to produce shorter estimates. Differences in sex, method of estimation, length of time intervals judged, and measurement of depression may account for the different results obtained. Significant differences in the means of the Consciousness Index between inmates in the sample who were in severe distress, moderate distress, and positive well-being were not obtained in the inmate sample (see Table 4.12). This supports the contention that the Consciousness Index may not be associated with subjective well-being in an inmate sample.

Summary Of Findings

In summary, the discussion of the results has only been suggestive. There may be other variables that account for the relationships obtained. The direction of the relationships can not be specified by the analysis. Of all the time perception variables measured, only Meaning, Attention to Death, and Past Orientation correlated significantly with the PGWB Index in the inmate sample. Meaning had the highest correlation with subjective well-being, but it was only a moderate correlation. Both

Attention to Death and Past Orientation had weak correlations with subjective well-being. The Consciousness Index, Fast Tempo, Slow Tempo, and Future Orientation did not correlate significantly with the PGWB Index in the inmate sample. However, the Consciousness Index is based on objective clock-oriented measurement, and the ability to estimate clock time may not be related to how well an individual subjectively feels. Also, the unawareness of time passage, rather than the awareness of time passage may be more important to subjective well-being for the inmate sample. Without a definite sense of an attainable future for most prison inmates, focusing thoughts and activities to a greater or lesser extent on the future may not influence the subjective well-being of the inmate sample. Rather than using the measurement of overall general perception of psychological well-being (i.e., PGWB Index) when investigating Slow Tempo and Future Orientation in an inmate sample, using the more specific measurements of subjective Anxiety, and subjective Positive Well-Being and Vitality respectively, may be indicated. Adaptive strategies may be employed by inmates in the sample to obtain a more comfortable perception of time and to obtain a better perception of well-being, with some inmates being more successful than others.

Analysis Of PGWB Variables With Biographical Variables

The purpose of the analysis was to determine if any of the biographical variables influenced the Psychological General Well-Being Index and scales in the inmate sample. Because of the large number of biographical variables analysed, the statistics reported will include mainly those with significant results. One way analysis of variance and the t-test for independent samples were used to analyse the interval level PGWB variables with the categorical biographical variables, and correlational analysis was used to analyse the interval level PGWB variables with the interval and ratio level biographical variables. These procedures determined whether the PGWB variable means between the biographical groups differed significantly. The Scheffé contrast procedure was used in conjunction with analysis of variance to identify which biographical groups differed. For the t-test, if the F-value 2-tailed probability for equality of variances was greater than .05, the t-value 2-tailed probability from the pooled variance estimate was used to determine the significance, and if the F-value was less than .05, the t-value 2-tailed probability from the separate variance estimate was used to determine the significance. If the critical t-value 2-tailed probability was less than .05, then the means of the PGWB variables between the two biographical groups differed significantly.

There were significant weak negative correlations of General Health (p = .005) and Vitality (p = .012) with age, but the other PGWB variables did not correlate significantly with age (See Table 4.14). Inmates in the sample who were younger (older) tended to perceive better (worse) general health and more (less) vitality. One way analysis of variances resulted in significant differences (p = .0229) in the means of PGWB Index between those married (n = 16, m = 73.4375), separated (n = 6, m = 47.3333), divorced (n = 11, m = 69.3636), widowed (n = 5, m = 48.2000), single (n = 38, m = 63.0526), and common-law (n = 9, m = 64.7778). Results of the Scheffé contrast procedure, however, indicated that the differences in the PGWB Index means between the groups were not large as no two groups were significantly different. Significant differences were not obtained in the means of the PGWB scales between the marital status categories. There were significant weak positive correlations of the PGWB Index (p = .050), Depressed Mood (p = .000), Self-Control (p = .043), and Vitality (p = .028) with the highest grade of elementary or high school obtained (see Table 4.14). Inmates in the sample who completed a higher (lower) grade at school tended to perceive higher (lower) levels of general well-being, less (more) depressed mood, more (less) self-control, and more (less) vitality. One way analysis of variance and the Scheffé contrast procedure did not result in significant differences in the

Table 4.14

Correlations Of PGWB Variables With Age, Education And Formal Activity Involvement

PGWB	Age	Grade	Working[a]	Work/School[b]
Index	-.0800	.2131*	-.1715	-.2257*
	(.006)	(.045)	(.029)	(.051)
Anxiety	.0508	-.0054	-.1319	-.1198
	(.003)	(.000)	(.017)	(.014)
Depressed	.0030	.3751**	-.2391*	-.2712*
	(.000)	(.141)	(.057)	(.074)
Positive	-.0237	.0850	-.1297	-.1804
	(.001)	(.007)	(.017)	(.033)
Control	.1314	.2198*	-.1470	-.1966
	(.017)	(.048)	(.022)	(.039)
Health	-.3020**	.1802	-.0598	-.0946
	(.091)	(.032)	(.004)	(.009)
Vitality	-.2711*	.2384*	-.0981	-.2146*
	(.073)	(.057)	(.010)	(.046)

Note. 2-tailed *$p \leq .05$, **$p < .01$, n = 85, Grade = highest grade completed, Index = PGWB Index, Depressed = Depressed Mood, Positive = Positive Well-Being, Control = Self-Control, Health = General Health, r^2 values are given below the correlation value in parenthesis, [a]1 = Yes, N = 54, 2 = No, n = 31, [b]1 = Yes, n = 68, 2 = No, n = 17, the lower the scores for Anxiety and Depressed Mood, the more the anxiety and depressed mood, and the higher the scores, the less the anxiety and depressed mood, PGWB = Psychological General Well-Being.

means of the PGWB variables between groups of highest education credential obtained. The PGWB variables did not correlate significantly with the number of jobs the inmates held outside of prison in the past 10 years.

There was a significant weak negative correlation of Depressed Mood (p = .028) with whether or not the inmates were working in prison, but significant correlations were not obtained for the other PGWB variables with this variable. Significant correlations were not obtained for the PGWB variables with whether or not the inmates in the sample were going to school or taking educational courses. However, there were significant weak negative correlations of the PGWB Index (p = .038), Depressed Mood (p = .012), and Vitality (p = .049) with whether or not the inmates were working and/or going to school or taking educational courses. Inmates in the sample who were working (not working) tended to perceive significantly less (more) depressed mood. Inmates in the sample who were working and/or going to school or taking educational courses (not working and/or going to school or taking educational courses) tended to perceive significantly less (more) depressed mood, more (less) vitality, and higher (lower) levels of general well-being.

Results from one way analysis of variance indicated that there were significant differences in the means of the PGWB Index and Vitality between inmates housed in disassociation and segregation (D&S), population, health care and induction, however the results of the Scheffé contrast procedure indicated that the differences in the means between groups were not large as no two groups were significantly different (see Table 4.15). Results from one way analysis of variance indicated that the means of Anxiety and Self-Control were not significantly different between inmates housed in the four areas. However, there were significant differences in the means of Depressed Mood, Positive Well-Being, and General Health between the groups.

The Scheffé contrast procedure results indicated that the means of Depressed Mood and Positive Well-being between those in D&S and those in population were significantly different. Inmates housed in population tended to perceive significantly less of a depressed mood, and more positive well-being compared to those housed in D&S. Significant differences in the means of Depressed Mood, and Positive Well-Being were not obtained between those housed in D&S and those housed in health care or induction, between those housed in population and those in health care and induction, or between those housed in health care and those in induction. The Scheffé contrast procedure results indicated that the means of General Health between those in population and those in health care were significantly different. Inmates housed in population had a significantly higher mean for General Health compared to those in health care.

Table 4.15

One Way Analysis Of Variance Of PGWB Variable Means With Housing Area

PGWB	1. D&S	2. Population	3. HCC	4. Induction		
	Mean	Mean	Mean	Mean	ANOVA p-value	Scheffé Contrast
Index	53.6000	67.5455	65.3333	65.7500	.0493*	
Anxiety	11.7500	14.0000	15.0000	12.2500	.4001	
Depressed	7.4000	10.5273	11.0000	11.5000	.0109*	1≠2
Positive	7.000	10.4545	11.6667	9.5000	.0079*	1≠2
Control	9.5500	10.9636	12.6667	11.5000	.1401	
Health	8.8500	9.4364	5.1667	8.7500	.0218*	3≠2
Vitality	9.0500	12.1636	9.8333	12.2500	.0360*	

Note. n = 85, D&S = Disassociation and Segregation, HCC = Health Care Centre, Index = PGWB Index, Depressed = Depressed Mood, Positive = Positive Well-Being, Control = Self-Control, Health = General Health, ANOVA p - values$\leq$.05 are marked with an *, the lower the mean on Anxiety and Depressed Mood, the more the anxiety and depressed mood, and the higher the mean, the less the anxiety and depressed mood, PGWB = Psychological General Well-Being.

Inmates in the sample who were housed in population tended to perceive themselves to have better general health compared to those in health care, which is expected. Significant differences in the means of General Health were not obtained between those housed in health care compared to those in D&S or induction. Significant differences in the means of General Health were not obtained between those in D&S compared to those in population or induction, or with those in population compared to those in induction.

Significant correlations were not obtained for the PGWB variables with the number of consecutive years the inmates in the sample were housed in D&S, population, health care and induction, the number of years since admission to this prison, the total number of years in their life time that they have spent in correctional facilities, and the total number of years since they were last 'on the street' (i.e., not a prisoner).

The t-test was used to determine if there were significant differences in the PGWB variable means between those serving a sentence with a definite time period (n = 51) and those serving a life sentence (n = 32). Because there were only two cases serving an indefinite sentence, this group was excluded. The mean of Vitality for those serving a definite sentence (m = 12.1569) was significantly greater than those (m = 10.0625) serving life (2-tailed F,p = .005, t-critical = 2.01, Degrees of Freedom (DF) = 46.96, 2-tailed t-p = .050). Inmates in the sample serving a definite sentence tended to have more vitality compared to those serving life. Significant differences in the means for the other PGWB variables between the type of sentence were not obtained. Significant correlations were not obtained for the PGWB variables with the length of the sentence (years) of those serving a definite time period (n = 51), or with the length of the sentence (years) until parole eligibility for those sentenced to life (n = 32).

The t-test was used to determine if there were significant differences in the PGWB variable means between those who had a last parole eligibility date (n = 49) and those who did not (n = 35). Because there was only one case who did not know his last parole eligibility date, this group was excluded. Significant differences in the means of all the PGWB variables were not obtained between the two groups. Significant correlations were not obtained for the PGWB variables with the number of years since the last parole eligibility date (n = 49). Results from one way analysis of variance indicated that the PGWB variable means were not significantly different between those who were granted parole (n = 8), not granted parole (n = 31), who waived their last parole eligibility date (n = 10), and those who did not have a parole eligibility date (n = 36).

The t-test was used to determine if there were significant differences in the PGWB variable means between those who have a next parole eligibility date (n = 75) with those who do not (n = 8). The two cases who did not know their next parole eligibility date were excluded. Significant differences in the means of the PGWB variables were not obtained between the two groups. Significant correlations were not obtained for the PGWB variable means with the number of years until their next parole eligibility date (n = 75). Results from one way analysis of variance (see Table 4.16) indicated that the means of the PGWB Index, Depressed Mood, Positive Well-Being, and Self-Control were significantly different between those who thought their chances for being granted parole were good (n = 47), poor (n =18), who did not know (n = 11), and who did not have a parole eligibility date (n = 8). The one case who will waive his parole eligibility date was not included in the analysis.

The Scheffé contrast procedure results indicated that the means of the PGWB Index and the means of the Depressed Mood between those who thought their chances were good, and those who thought their chances were poor were significantly different. Inmates in the sample who felt that their chances were good for obtaining parole at their next parole eligibility date tended to perceive a higher general level of well-being and less of a depressed mood compared to those who felt that their chances were poor. Significant differences in the means of the PGWB Index and the means

Table 4.16

One Way Analysis Of Variance Of PGWB Variable Means With Chances At Next Parole Eligibility Date

PGWB	Chances 1. Good	 2. Poor	 3. DNK	 4. NA		
	Mean	Mean	Mean	Mean	ANOVA p-value	Scheffé Contrast
Index	69.2766	51.4444	63.4545	59.0000	.0065*	1≠2
Anxiety	14.8085	11.3333	12.0000	11.2500	.0594	
Depressed	10.8511	7.6667	9.0909	9.5000	.0230*	1≠2
Positive	10.3191	6.7778	11.7273	9.0000	.0041*	1≠2, 3≠2
Control	11.7447	9.4444	10.3636	8.1250	.0029*	1≠4
Health	9.5745	7.5000	8.8182	9.1250	.1505	
Vitality	11.9787	8.7222	11.4545	12.0000	.0508	

Note. $n = 84$, missing 1 case 'will waive parole date', Index = PGWB Index, Depressed = Depressed Mood, Positive = Positive Well-Being, Control = Self-Control, Health = General Health, DNK = Do Not Know, NA = Not Applicable, ANOVA p - values$\leq .05$ are marked with an *, the lower the mean on Anxiety and Depressed Mood, the more the anxiety and depressed mood, and the higher the mean, the less the anxiety and depressed mood, PGWB = Psychological General Well-Being.

of Depressed Mood were not obtained between those who felt their chances were poor compared to those who did not know their chances or those who did not have a parole eligibility date. Significant differences in the means of the PGWB Index and the means of Depressed Mood were not obtained between those who felt their chances were good compared to those who did not know their chances or those who did not have a parole eligibility date. Significant differences in the means of the PGWB Index and Depressed Mood were not obtained between those who did not know their chances and those who did not have a parole eligibility date.

The Scheffé contrast procedure results indicated that the means of Positive Well-Being were significantly different between those who felt that their chances were poor compared to those who felt that their chances were good, and compared to those who did not know their chances. Inmates in the sample who felt that their chances were good tended to perceive higher positive well-being compared to those who felt that their chances were poor for obtaining parole at their next parol eligibility date. Inmates who did not know their chances tended to perceive higher a positive well-being compared to those who felt that their chances were poor. Significant differences were not obtained in the means of Positive Well-Being between those who felt that their chances were poor and those who did not have a next parole eligibility date. Significant differences were not obtained in the means of Positive Well-Being between those who felt that their chances were good compared to those who did not know their chances or those who did not have a parole eligibility date. Significant differences were not obtained in the means of Positive Well-Being between those who did not know their chances and those who do not have a next parole eligibility date.

The Scheffé contrast procedure results indicated that there were significant differences in the means of Self-Control between those who felt that their chances were good compared to those who do not have a parole eligibility date. Inmates in the sample who felt that their chances were good for obtaining parole tended to perceive significantly more self-control compared to those who do not have a next parole eligibility date. Significant differences in the means of Self-Control were not obtained between those who felt that their chances were good compared to those who felt that their chances were poor and those who do not have a next parole eligibility date. Significant differences in the means of Self-Control were not obtained between those who felt that their chances were poor compared to those who do not know their chances or those who do not have a next parole eligibility date. Significant differences in the means of Self-Control were not obtained between those who do not know their chances and those who do not have a next parole eligibility date.

The t-test was used to determine if there were significant differences in the PGWB variable means between those who have a mandatory supervision (MS) date (n = 50) and those who do not (n = 34). The one case who did not know his MS data was excluded. The only statistically significant difference in the means of the PGWB variables obtained was that of Vitality with the MS date (2-tailed F,p = .004, t-critical = 2.19, DF = 50.90, 2-tailed t-p = .033). Inmates in the sample who do have a MS date tended to perceive significantly more vitality (m = 12.2000) compared to those who do not have a MS date (m = 9.9412). Significant correlations were not obtained for the PGWB variables with the number of years until the MS date (n = 50). The t-test was used to determine if there were differences in the PGWB variable means between those who wish to be released (n = 45) and those who do not have a MS date (n = 34). The two cases who did not wish to be released, and the four cases who were undecided were excluded. The only PGWB variable with a significant difference in the means between the groups was Vitality (2-tailed F,p = .007, t-critical = 2.12, DF = 53.14, 2=tailed t-p = .039). Inmates in the sample who wish to be released on their MS date tended to perceive significantly more vitality (m = 12.1556) compared to those who do not have a MS date (m = 9.9412).

The t-test was used to determine if there were significant differences in the PGWB variables means between those who have (n = 51) a warrant expiry date (WED) and those who do not (n = 34). The only PGWB variable that had significantly different means between the two groups was Vitality (2-tailed F,p = .003, t-critical = 2.16, DF = 50.42, 2-tailed t-p = .036). Inmates in the sample who do have a WED tended to perceive significantly more vitality (m = 12.1569) compared to those who do not have a WED (m = 9.9412). Significant correlations were not obtained for the PGWB variables with the number of years the inmates have left until their WED (n = 51).

The t-test was used to determine if there were significant differences in the PGWB variable means between those who have a hearing, appeal, judicial review, retrial etc., (n = 11) and those who do not (n = 74). Significant differences in the means of the PGWB variables were not obtained between the two groups. Significant correlations were not obtained for the PGWB variables with the number of years left until these dates (n = 11). The t-test was used to determine if there were significant differences in the PGWB variable means between those inmates who felt that their chances were good (n = 7) for being granted parole, for sentence acquittal, for getting a retrial etc. and those who do not have these dates (n = 74). The one case who felt his chances were poor and the three cases who were undecided were excluded. Significant differences in the means of the

PGWB variables between the two groups were not obtained.

Parole, MS, hearings, judicial reviews, retrials, and appeal dates are all important dates for inmates, of which only one will arise in the future sooner than the others that apply for the inmate. All of the PGWB variables were not significantly correlated to the number of years left until the soonest important date (n = 84). One case who did not know the date of his soonest important date was excluded. One way analysis of variance was used to determine if the PGWB variable means differed significantly between those who thought their chances were good (n = 54), poor (n = 17), and those who were undecided (n = 14) about being released, granted parole, having their sentence reduced, or having their case come to trial again (see Table 4.17). Significant differences were obtained in the means of the PGWB Index (p = .0060), Depressed Mood (p = .0222), Positive Well-Being (p = .0030), Self-Control (p = .0420), and Vitality (p = .0081) with their chances at their soonest important date. The means of Anxiety (p = .0627) and General Health (p = .4185) were not significantly different between the groups.

The Scheffé contrast procedure results indicated that the means of the PGWB Index, Depressed Mood, and Vitality were significantly different between those who felt that their chances were good compared to those who felt that their chances were poor for being released, granted parole,

Table 4.17

One Way Analysis Of Variance Of PGWB Variable Means With Chances At Soonest Important Date

	Chances				
PGWB	1. Good	2. Poor	3. DNK		
	Mean	Mean	Mean	ANOVA p-value	Scheffé Contrast
Index	68.5741	52.0588	61.0000	.0060*	1≠2
Anxiety	14.5370	11.3529	11.8571	.0627	
Depressed	10.7037	7.8824	9.0714	.0222*	1≠2
Positive	10.4259	6.6471	10.5000	.0030*	1≠2, 3≠2
Control	11.4259	9.4706	9.8571	.0420*	
Health	9.3148	8.2353	8.5000	.4185	
Vitality	12.1667	8.4706	11.2143	.0081*	1≠2

Note. n = 85, Index = PGWB Index, Depressed = Depressed Mood, Positive = Positive Well-Being, Control = Self-Control, Health = General Health, DNK = Do Not Know, NA = Not Applicable, ANOVA p - values$\leq$.05 are marked with an *, the lower the mean on Anxiety and Depressed Mood, the more the anxiety and depressed mood, and the higher the mean, the less the anxiety and depressed mood, PGWB = Psychological General Well-Being.

having their sentences reduced, or having their case come to trial again. Inmates who felt that their chance were good tended to perceive a significantly higher level of general well-being, less depressed mood and more vitality compared to those who felt that their chances were poor. Significant differences were not obtained in the means of the PGWB Index, Depressed Mood and Vitality between those who were undecided about their chances compared to those who felt their chances were good or poor.

The Scheffé contrast procedure results indicated that the mean of Positive Well-Being was significantly lower for those who felt that their chances were poor compared to those who felt that their chances were good, and compared to those who were undecided about their chances for being released, granted parole, having their sentence reduced, or having their case come to trial again. Inmates in the sample who felt that their chances were poor tended to perceive significantly lower positive well-being compared to those who felt that their chances were good and compared to those who were undecided about being released, granted parole, having their sentence reduced, or having their case come to trial again. Significant differences in the means of Positive Well-Being were not obtained between those who felt that their chances were good compared to those who were undecided.

The Scheffé contrast procedure results indicated that the differences in the means of Self-Control between those who felt their chances were good, poor, or those who were undecided were not large as no two groups were significantly different.

Depressed Mood ($r = -.2787$, $r^2 = .078$, 2-tailed $p = .010$) and Vitality ($r = -.2832$, $r^2 = .080$, 2-tailed $p = .009$) correlated significantly with whether or not the inmates were illiterate (0 = not illiterate, $n = 81$; 1 = illiterate, $n = 4$) but the other PGWB variables were not significantly related to it. Inmates in the sample who were illiterate (literate) tended to perceive themselves to have more (less) of a depressed mood and less (more) vitality. Significant correlations were not obtained for the PGWB variables with whether or not the inmates were in a condition other than normal, smoking, and drinking coffee or tea during the interview or whether or not they had unescorted temporary absence privileges.

Discussion Of Results

A discussion of the analysis of the PGWB variables with the biographical variables follows. Whenever possible, comparisons will be made with other studies that were reviewed in the literature. Age did not correlate significantly with the PGWB Index in the inmate sample. Similar findings have been reported in other studies. In two separate studies, Engle reported that age did not correlate significantly with self-assessment of health, as measured by the Cantril Ladder (1984) or the Sickness Impact Profile (1986) in older women (n = 114). Palmore and Luikart (1972) reported that age was not significantly related to self-rated health, as measured by a ladder representing a rating from the most serious illness to perfect health, when men and women were considered separately (n = 502). However, Tessler and Mechanic (1978) found that poorer health status, as measured by a single question, was significantly affected by older age in predominately female subjects (n = 989). In an intensive review of studies conducted prior to 1980, Diener (1984) reported that the correlation between age and subjective well-being was near zero, regardless of whether other variables were controlled.

Approximately 9.1% of the variance in General Health, and 7.3% of the variance in Vitality is predictable from knowing age in the inmate sample (see Table 4.14). The older (younger) inmates in the sample tended to view themselves as having worse (better) general health and less (more) vitality. However, age did not correlate with the other PGWB scales in the inmate study. Palmore and Luikart (1972) reported that there was a low negative correlation between age and satisfaction in the middle aged (n = 502) indicating that the older middle aged tended to be less satisfied with life than the younger middle aged. If life satisfaction is assumed to be similar to the concept of

Positive Well-Being (see Appendix 1), the differences in the results may be due to the different age ranges studied between the two samples. Beiser (1987) obtained a significant correlation between depression scores and age suggesting that the younger South East Asian refugees (n = 1169) were the most depressed. However, age did not correlate significantly with Depressed Mood in the inmate sample. Differences in results may be due to sample characteristics and measurement of depression.

Marital status does not appear to influence the PGWB variables in the inmate sample. In a study (Tessler & Mechanic, 1978) of predominately male college students (n = 1391), perceived health status, as measured by a single question about physical health, was rated significantly more poorly by those who were unmarried. After reviewing a large number of studies, Diener (1984) reported that married persons tended to have higher subjective well-being than any category of unmarried persons, but that it may interact with other variables such as race, and having children.

The highest grade of elementary or high school obtained accounted for 4.5% of the variance in the PGWB Index, 14.1% of the variance in Depressed Mood, 4.8% of the variance in Self-Control, and 5.7% of the variance in Vitality in the inmate sample (see Table 4.14). Those inmates who completed a higher (lower) grade at school tended to perceive a higher (lower) level of general well-being, less (more) depressed mood, more (less) self-control, and more (less) vitality. However the highest education credential obtained appeared to have no influence on the PGWB variables. Engle (1984) also found that self-assessment of health (Cantril Ladder) did not correlate significantly with education in older women (n = 114). In studies (Tessler & Mechanic, 1978) of predominately female adult subjects (n = 989) and of predominately male adult subjects (n = 379), poorer perceived health status, as measured by a single question, was significantly related to a lower educational level. Palmore and Luikart (1972) reported that education had little relationship to life satisfaction in the total middle aged sample (n = 502) but was not related to life satisfaction in the younger middle aged. Diener (1984) reported that the literature seems to suggest that education tends to have an influence on subjective well-being but the effects are not strong and seems to interact with other variables such as income.

The number of jobs the inmates in the sample had outside of prison in the past 10 years did not appear to influence the PGWB variables. Whether or not the inmates in the sample were working accounted for 5.7% of the variance in Depressed Mood (see Table 4.14) but appeared to have no influence on the other PGWB variables. Palmore and Luikart (1972) reported that employment was significantly related to life satisfaction among middle aged men (n = 261), whereas there was no relation between work and Positive Well-Being in the inmate sample. The different age ranges in the studies may account for the different results. However, prison work may tend to not be perceived as either satisfying or unsatisfying because the variety of work available is limited, and the wages are minimal. Whether or not the inmates in the sample were going to school or taking educational classes did not appear to affect the PGWB variables. However, 5.1% of the variance in the PGWB Index, 7.4% of the variance in Depressed Mood, and 4.6% of the variance in Vitality was accounted by whether or not the inmates in the sample were involved in the formal activity of working and/or going to school or taking educational courses (see Table 4.14). Similar results were obtained by Palmore and Luikart (1972), who reported that the second strongest variable related to life satisfaction was organizational activity in a longitudinal study of approximately equally distributed middle aged male and female subjects (n = 502).

It appears that the inmates in the sample who were housed in disassociation and segregation (D&S) tended to perceive themselves to be significantly more depressed, and to have significantly lower positive well-being compared to those housed in population. Those inmates housed in population tended to perceive significantly better general health compared to those housed in health care as would be expected. The results seem to indicate that the D&S environment, previously described, does tend to negatively affect aspects of subjective well-being. The number of consecutive years the inmates were housed in their area did not appear to influence the PGWB variables.

The number of years the inmates in the sample had spent in this prison, the total amount of time they had spent in correctional facilities, the total amount of time they had spent in correctional facilities, and the total amount of time since they were last not a prisoner did not appear to influence subjective well-being. Of the 85 inmates in the sample, 62.4% (see Table 4.8) tended to perceive themselves to be in some well-being distress. It therefore appears that no matter how much previous experience the inmates had with incarceration, they still tended to perceive generally lower subjective well-being. Therefore, incarceration itself appears to be detrimental to subjective well-being. Because of the possible underlying negative impact of incarceration on well-being, if other negative stressors are experienced by the inmates, this may heighten the perception of subjective distress (i.e., lower subjective well-being) and result in volatile reactions such as verbal outbursts, fighting, self-mutilation, and psychoticism. The expressed desire for sedatives and narcotics and the prevalent abuse of drugs and alcohol may be attempts to adapt to the prison environment.

Those inmates in the sample who were serving a definite sentence tended to perceive significantly more vitality compared to those serving a life sentence. The length of time imposed for the definite sentence, and the length of time imposed until parole eligibility for the life sentence did not appear to influence the PGWB variables.

Analysis of the last parole eligibility date indicated that it did not tend to influence the PGWB variables. Those inmates in the sample who do have a mandatory supervision (MS) date tended to perceive significantly more vitality compared to those who do not. The number of years until the MS date did not appear to influence the PGWB variables. Also, those inmates who wished to be released on their MS date tended to perceive significantly more vitality compared to those who do not have a MS date. Those inmates who do have a warrant expiry date (WED) tended to perceive significantly more vitality compared to those who do not have a WED. The number of years the inmates have left until their WED did not appear to influence the PGWB variables. Since the inmates who were serving life or an indefinite sentence do not have a MS or WED, it is this group that tended to perceive less vitality compared to those who were serving a definite sentence.

Whether or not the inmates in the sample have a next parole eligibility date and the number of years left until their next parole eligibility date did not appear to influence the PGWB variables. However, what the inmates considered their chances for being granted parole at their next parole eligibility date did appear to have some influence (see Table 4.16). Inmates in the sample who considered their chances to be good tended to perceive a significantly higher level of general well-being, less of a depressed mood, and a higher level of positive well-being compared to those who felt that their chances were poor. Those inmates in the sample who did not know their chances tended to have a higher positive well-being compared to those who felt that their chances were poor. Those inmates who felt that their chances were good tended to perceive significantly more self-control compared to those who do not have a parole eligibility date. Whether or not the inmates in the sample have a hearing, appeal, judicial review, retrial etc. and what they felt their chances were at these dates appeared to have no influence on the PGWB variables. When this variable was analysed in conjunction with the next parole eligibility date and the MS date, by determining which of these important dates came sooner in time for the inmate, none of these dates had an influence on the PGWB variables. However, when what the inmates felt their chances were for being released, granted parole, having their sentence reduced, or having their case come to trial again at their nearest important date were considered in the analysis, significant influences on some of the PGWB variables were obtained. Those inmates who felt that their chances were good tended to perceive significantly higher levels of general well-being, less depressed mood and more vitality compared to those who felt that their chances were poor. Those inmates who felt that their chances were poor tended to perceive significantly lower positive well-being compared to those who felt that their chances were good and compared to those who were undecided (see Table 4.17).

Whether or not the inmates in the sample were illiterate accounted for 7.8% of the variance in Depressed Mood, and 8.0% of the variance in Vitality. Those inmates who were illiterate (literate) tended to perceive themselves to have more (less) of a depressed mood and less (more) vitality. Three out of the four inmates who were illiterate were also housed in D&S. Because the inmates in D&S had significantly more of a depressed mood compared to those in population, and because the majority of the illiterate inmates were in D&S, the D&S housing area may be confounding the results. Whether or not the inmates in the sample were in a condition other than normal, smoking, and drinking coffee or tea during the interview, or whether or not they had unescorted temporary absence privileges appeared not to influence the PGWB variables.

Summary Of Findings

To summarize, of the biographical variables that were analysed, only those that influenced each PGWB variable are reported in Table 4.18. The PGWB Index appears to be influenced by only four biographical variables. Vitality and Depressed Mood are the two PGWB scales that appear to be influenced by more biographical variables, and Anxiety does not appear to be influenced by any of the biographical variables. Overall, it appears that 12 biographical variables had some influence on subjective well-being as measured by all the PGWB variables. It appears that age, highest grade of elementary or high school obtained, whether or not the inmates were working, and whether or not they were involved in formal activity had influences on subjective well-being. From the analysis, it appears that there are differences on three of the seven PGWB variables between those inmates who were housed in D&S compared to those who were housed in the other areas of the prison, whereby D&S inmates tended to perceive more of a depressed mood, less positive well-being, and less general health compared to those housed elsewhere. Also three of the four illiterate inmates were housed in D&S, and they tended to perceive more of a depressed mood and less vitality compared to the literate. Therefore, housing location appears to be an important biographical variable influencing subjective well-being. It therefore appears that there may be two distinct biographical groups in the inmate sample that influences subjective well-being, those housed in D&S, and those housed elsewhere in the prison.

Table 4.18

Biographical Variables That Influenced The PGWB Variables

Biographical	PGWB Variables						
	Index	Anxiety	Depressed	Positive	Control	Health	Vitality
Age^a						*	*
Grade^a	*		*		*		*
Work^a			*				
Work/School^a	*		*				*
Housing Area^a			*	*		*	
Chances PED^a	*		*	*	*		
Sentence^c							*
MS Date^b							*
Wish MS^d							*
WED^a							*
Chances Next^a	*		*	*			*
Literacy^a			*				*

Note. ^{a}n = 85, ^{b}n = 84, ^{c}n = 83, ^{d}n = 79, the PGWB variable that was influenced by the biographical variable is marked with an *, Index = PGWB Index, Depressed = Depressed Mood, Positive = Positive Well-Being, control = Self-Control, MS date = mandatory supervision date, Wish MS = wish to be released on mandatory supervision date, Chances next = chances for parole, release, sentence acquittal etc., at date that is nearest in time. WED = warrant expiry date, PGWB = Psychological General Well-Being.

The type of sentence the inmates in the sample had determines whether they have a MS and WED date, and if and when the inmates are eligible for parole. Because 5 of the 12 significant biographical variables address sentence related issues, especially between those serving a definite sentence and those serving life, it appears that whether or not the inmates were serving life or a definite sentence is an important biographical variable influencing subjective well-being. The two inmates who were serving an indefinite sentence, do not have a MS or WED date, so are similar in this respect to those serving life. It therefore appears that there may be two distinct biographical groups in the inmate sample that influences subjective well-being, those serving life or an indefinite sentence, and those serving a definite sentence.

Analysis Of Time Perception Variables With Biographical Variables

The purpose of the analysis was to determine if any of the biographical variables influenced the time perception variables in the inmate sample. Because of the large number of biographical variables analysed, the statistics reported will include mainly those with significant results. One way analysis of variance and the t-test for independent samples were used to analyse the interval level time perception variables with the categorical biographical variables, and correlational analysis was used to analyse the interval level time perception variables with the interval and ratio level biographical variables. These procedures determined whether the time perception variable means between the biographical groups differed significantly. The Scheffé contrast procedure was used in conjunction with analysis of variance to identify which biographical groups differed. For the t-test, if the F-value 2-tailed probability for equality of variances was greater than .05, the t-value 2-tailed probability from the pooled variance estimate was used to determine the significance, and if the F-value was less than .05, the t-value 2-tailed probability from the separate variance estimate was used to determine the significance. If the critical t-value 2-tailed probability was less than .05, then the means of the PGWB variables between the two biographical groups differed significantly.

All of the time perception variables did not correlate significantly with age. Results from one way analysis of variance indicated that means of all the time perception variables did not significantly differ between those married ($n = 16$), separated ($n = 6$), divorced ($n = 11$), widowed ($n = 5$), single ($n = 38$), and common-law ($n = 9$). There was a significant weak positive correlation of Meaning with the highest grade obtained at school ($r = .3006$, $r^2 = .090$, 2-tailed $p = .005$), but significant correlations were not obtained for the other time perception variables with highest grade obtained at school. Inmates in the sample who obtained a higher (lower) grade at school tended to have a more positive (negative) meaning of time. However, one way analysis of variance results indicated that the time perception means did not differ significantly between those who obtained less than high school (n = 36), high school (n = 14), technical school (n = 29), or a college/university degree (n = 6) as their highest education credential. The time perception variables did not correlate significantly with the number of jobs the inmates held outside of prison in the last 10 years.

There was a significant weak negative correlation of Fast Tempo ($r = -.2369$, $r^2 = .056$, 2-tailed $p = .029$) with whether or not the inmates were going to school or taking educational courses to (1 = Yes, n = 37; 2 = No, n = 48) but the other time perception variables did not significantly correlate with whether or not they were going to school or taking educational courses. The time perception variables did not correlate significantly with whether or not they were working or whether or not they were working and/or going to school. Inmates in the sample who were going to school or taking educational courses tended to perceive time as passing more quickly over the life time compared to those who were not.

One way analysis of variance results indicated that there was a significant difference in the means of Meaning between the four areas where they were housed ($p = .0218$), but significant differences were not obtained for the other time perception means between the groups. Results from the Scheffé contrast procedure indicated that the mean of Meaning was significantly higher for those housed in population (n = 55, m = 4.6491) compared to those housed in D&S (n = 20, m = 3.8600). Inmates in the sample who were housed in population tended to have a more positive meaning of time compared to those housed in D&S. Significant differences in the means of Meaning were not obtained between those housed in health care (n = 6, m = 4.6833) compared to those housed in D&S, population or induction (n = 4, m = 3.9750). Significant differences in the means of Meaning were not obtained between those housed in induction compared to those housed in D&S and in population. There was a significant weak negative correlation of Past Orientation with the number of consecutive years the inmates had been housed in the area ($r = -.2798$, $r^2 = .078$, 2-tailed $p = .009$), but the other time perception variables did not correlate significantly with the number of years they were housed in the area. Inmates in the sample who had been housed in the area for more (less) years tended to focus their thoughts and activities less (more) on the past.

There was a significant weak negative correlation of Past Orientation with the number of years that had passed since the inmates were admitted to this prison ($r = -.3043$, $r^2 = .093$, 2-tailed $p = .005$) but the other time perception variables did not correlate significantly with the number of years since admission. Inmates in the sample who had spent more (less) years in this prison since admission tended to focus their thoughts and activities less (more) on the past. Significant correlations were not obtained for the time perception variables with the total number of years in their life time that the inmates had been incarcerated or with the number of years since they were last on the street (i.e., not prisoners).

The t-test was used to determine if there were significant differences in the time perception means between those serving a sentence with a definite time period (n = 51) and those serving a life sentence (n = 32). The two cases serving an indefinite sentence were excluded. The mean of Meaning for those serving life (m = 4.0969) was significantly less than the mean (4.6471) of those serving a definite sentence (2-tailed F,p = .161, t-critical = 2.42, DF = 81, 2-tailed t-p = .018). Significant differences in the means of the other time perception variables were not obtained between the groups. Inmates in the sample who were serving a definite sentence tended to have a more positive meaning of time compared to those serving life. Significant weak negative correlations were obtained for the Consciousness Index ($r = -.2819$, $r^2 = .079$, 2-tailed $p = .045$) and Past Orientation ($r = -.2782$, $r^2 = .077$, 2-tailed $p = .048$) with the number of years those with a definite sentence were sentenced to (n = 51), but significant correlations were not obtained for the other time perception variables. Inmates in the sample serving a definite sentence who were sentenced to more (less) years tended to have a lower (higher) Consciousness Index, and tended to focus their thoughts and activities less (more) on the past. A significant weak negative correlation ($r = -.3708$, $r^2 = .137$, 2-tailed $p = .037$) was obtained for Attention to Death with the number of years sentenced before they are eligible for parole for those serving life (n = 32), but significant correlations were not obtained for the other time perception variables. Inmates in the sample serving a life sentence who were sentenced to more (less) years before parole eligibility tended to focus less (more) attention to personal death.

The t-test was used to determine if there were significant differences in the time perception means between those who had a last parole eligibility date (n = 49) and those who did not (n = 35). The one case who did not know his last parole eligibility date was excluded. Significant differences in the means between the groups were not obtained. Significant correlations were not obtained for the time perception variables with the number of years since their last parole date (n = 49). One way analysis of variance results indicated that the time perception means were not significantly different between those who were granted parole (n = 8), not granted parole (n = 31), who waived their last parole eligibility date (n = 10), and those who did not have a parole eligibility date (n = 36).

The t-test was used to determine if there were significant differences in the time perception means between those who have a next parole eligibility date (n = 75) with those who do not (n = 8). The two cases who did not know their next parole eligibility date were excluded. All the means of the time perception variables were not significantly different between the two groups. Significant correlations were not obtained for the time perception variable means with the number of years until their next parole eligibility date (n = 75). Results from one way analysis of variance indicated that the means of Meaning differed significantly (p = .0429) between those who thought their chances for being granted parole were good (n = 47), poor (n = 18), who did not know (n = 11), or who did not have a next parole eligibility date (n = 8). The one case who will waive his parole eligibility date was excluded. However, significant differences in the means of the other time perception variables were not obtained. Results from the Scheffé contrast procedure determined that the differences in the means of Meaning between the groups were not large as no two groups were statistically significant.

The t-test was used to determine if there were significant differences in the time perception means between those who have a mandatory supervision (MS) date (n = 50) and those who do not (n = 34). The one case who did not know his MS date was excluded. The only statistically significant differences in the means of the time perception variables obtained was that of Meaning with the MS date (2-tailed F,p = .134, t-critical = 2.32, DF = 82, 2-tailed t-p = .023). Inmates in the sample who do have a MS date tended to have a significantly more positive meaning (m = 4.6460) of time compared to those who do not have a MS date (m = 4.1147). Significant correlations were not obtained for the time perception variables with the number of years left until MS (n = 50). The t-test was used to determine if there were significant differences in the time perception means between those who wish to be released (n = 45) and those who do not have a MS date (n = 34). The two cases who did not wish to be released and the four cases who were undecided were excluded. The only time perception variable that had a significant difference in the means between the groups was Meaning (2-tailed F,p = .118, t-critical = 2.58, DF = 77, 2-tailed t-p = .012). Inmates in the sample who do not have a MS date tended to have a significantly less positive meaning of time (m = 4.1147) compared to those who wish to be released on their MS date (m = 4.7178).

The t-test was used to determine if there were significant differences in the time perception means between those who have (n = 51) a warrant expiry date (WED) and those who do not (n = 34). The only time perception variable that had significantly different means between the two groups was Meaning (2-tailed F,p = .116, t-critical = 2.35, DF = 83, 2-tailed t-p = .021). Inmates in the sample who do not have a WED tend to have a less positive meaning of time (m = 4.1147) compared to those who do have a WED (m = 4.6471). Significant correlations were not obtained for the time perception variables with the number of years the inmates have left until their WED (n = 51).

The t-test was used to determine if there were significant differences in the time perception means between those who have a hearing, appeal, judicial review, retrial etc., (n = 11) and those who do not (n = 74). Significant differences in the means of the time perception variables were not obtained between the two groups. Significant correlations were not obtained for the time perception variables with the number of years left until these dates (n = 11). The t-test was used to determine if there were significant differences in the time perception means between those inmates who felt that their chances were good (n = 7) for being granted parole, for sentence acquittal, for getting a retrial, etc., at these dates and those who did not have these dates (n = 74). The one case who felt his chances were poor and the three cases who were undecided were excluded. The only time perception mean that was significantly different between the two groups was Slow

Tempo (2-tailed F,p = .036, t-critical = -3.35, DF = 13.75, 2-tailed t-p = .005). Inmates in the sample who felt that their chances were good tended to perceive time as passing less slowly in particular personal situations (m = 3.4571) compared to those who do not have a date (m = 3.9905).

Parole, MS, hearings, judicial reviews, retrials, and appeal dates are all important dates for inmates, of which only one will arise in the future sooner than the others that apply for the inmate. Results from the correlational analysis indicated that all of the time perception variables were not significantly related to the number of years left until the soonest important date (n = 84). One case who did not know the date was excluded from the analysis. One way analysis of variance was used to determine if the time perception means differed significantly between those who thought that their chances were good (n = 54), poor (n = 17), and those who were undecided (n = 14) about their chances of being released, granted parole, having their sentence reduced, or having their case come to trial again. The only time perception mean that was significantly different between the groups was Meaning (p = .0122). The Scheffé contrast procedure results indicated that those who felt that their chances were good obtained a significantly higher mean (m = 4.6574) compared to those who felt that their chances were poor (m = 3.8118). Inmates in the sample who felt that their chances were good for being released, granted parole, having their sentence reduced or having their case come to trial again tended to have a more positive meaning of time compared to those who thought that their chances were poor. The means of Meaning for those inmates who were undecided about their chances were not significantly different compared to those who thought that their chances were good, or compared with those who thought their chances were poor.

Whether or not the inmates in the sample drank coffee or tea (0 = No, n = 19; 1 = Yes, n = 66) during the interview had a significant weak positive correlation with the Consciousness Index ($r = .2203$, $r^2 = .049$ $p = .043$), but was not significantly related to the other time perception variables. Inmates in the sample who did (did not) drink coffee or tea during the interview tended to have a higher (lower) Consciousness Index. Whether or not the inmates in the sample were illiterate, in a condition other than normal, or smoking during the interview, and whether or not the inmates had unescorted temporary absence privileges did not correlate significantly with the time perception variables.

Discussion Of Results

A discussion of the analysis of the time perception variables with the biographical variables follows. Wherever possible, comparisons will be made with other studies that were reviewed in the literature. Age did not correlate significantly with any to the time perception variables. Similar results were obtained in other studies of some of the time perception variables. Engle (1984, 1986) did not obtain a significant correlation between age and the production of 40 s in older females (n = 114). Kitamura and Kumar (1983) did not obtain a significant correlation between age and the production of 30 s in both the patients with depression (n = 23) and controls (n = 23) in males (n = 26) and females (n = 20). In two separate studies, Newman did not obtain a significant correlation between age and the production of 40 s in a sample of n = 52 males (1972) and a predominately female (n = 85) sample (1982). Age was not significantly related to the Consciousness Index, as determined by the production of 40 s in a study (Mentzer & Anderson-Schorr, 1986) of institutionalized aged women (n = 40). However, Newman (1976) did obtain a significant positive correlation (r = .225) between age and the production of 40 s in a predominately female sample of students (n = 90). Feifel (1957) found that the older males (n = 79) significantly produced shorter time intervals of 30, 60, 180, and 300 s. Kuhlen and Monge (1968) did not obtain a significant relationship between age and speed of time passage in graduate students (male, n = 144; female, n = 153). The older South East Asian refugees were significantly more nostalgic (i.e., past oriented) than the younger (n = 1169), but age was not statistically significant in the Vancouverites (n = 319) in a study by Beiser (1987).

Marital status did not appear to influence any of the time perception variables in the inmate sample. Approximately 9.0% of the variance in Meaning is predictable from knowing the highest grade obtained at school in the inmate sample. Those inmates who obtained a higher (lower) grade at school tended to have a more positive (negative) meaning of time. However, the highest educational credential obtained did not appear to influence any of the time perception variables. Engle (1984) did not obtain a significant correlation between education and the production of 40 s in a sample of older females (n = 114).

The number of jobs the inmates in the sample held outside of prison in the past 10 years did not appear to influence any of the time perception variables. Approximately 5.6% of the variance in Fast Tempo is predictable from knowing whether or not the inmates in the sample were going to school or taking educational courses. Those inmates who were going to school or taking education courses tended to perceive time as passing more quickly over the life time compared to those who were not. However, whether or not they were working, and whether or not they were working and/or going to school did not appear to influence any of the time perception variables. Contrary to this, Kuhlen and Monge (1968) found that filled time is sensed as going more rapidly than unfilled time in male (n = 144) and female (n = 153) graduate students. In a study (Baum et al, 1984) of institutionalized and community dwelling predominately female elders (n = 296), maintaining a sense of purpose in life (Purpose In Life Test), and being more actively involved in clubs and organizations (formal activity) was significantly related to time moving swiftly. The question is posed as to whether educational pursuits may tend to give the inmates in the sample a sense of purpose, and whether prison work may not tend to given them a sense of purpose. Perhaps, the way the inmates' time is filled and whether or not this filling of time is perceived in a positive way may be more important to consider (Baum et al, 1984).

Those inmates in the sample who were housed in population tended to have a more positive meaning of time compared to those housed in disassociation and segregation (D&S). Approximately 7.8% of the variance in Past Orientation is predictable from knowing the number of consecutive years the inmates have been housed in the prison area they are presently in. Those inmates who had been housed in the area for more (less) years tended to focus their thoughts and activities less (more) on the past.

Approximately 9.3% of the variance in Past Orientation is predictable from knowing the years that have passed since the inmates in the sample were admitted to this prison.

Those inmates who spent more (less) years in this prison tended to focus their thoughts and activities less (more) on the past. Morris and Zingle (1977) found that male inmates incarcerated for longer periods of time tended to be significantly more future oriented ($n = 104$). The total number of years in their life time that the inmates in the sample have been incarcerated, or the number of years since they were not prisoners did not appear to influence any of the time perception variables.

Inmates in the sample who were serving a definite sentence tended to have a more positive meaning of time compared to those serving life. The number of years those with a definite sentence were sentenced to accounted for 7.9% of the variance in the Consciousness Index and 7.7% of the variance in Past Orientation. Those inmates serving a definite sentence who were sentenced to more (less) years tended to have a lower (higher) Consciousness Index, and tended to focus their thoughts and activities less (more) on the past. The number of years those serving life were sentenced to before they are eligible for parole accounted for 13.7% of the variance in Attention to Death. Those inmates serving a life sentence who were sentenced to more (less) years before parole eligibility tended to focus less (more) attention to personal death. This latter finding is curious, as it would be expected that being confined to prison for a longer period of time before having a chance for parole *would* lead to focusing more attention to personal death.

Analysis of the variable, last parole eligibility date, did not appear to influence any of the time perception variables. Whether or not the inmates in the sample have a parole eligibility date in the future, the number of years they have to wait until this date, and what they felt their chances were for obtaining parole, did not appear to affect any of the time perception variables.

Those inmates in the sample who do have a mandatory supervision (MS) date, and those inmates who wished to be released on their MS date tended to have a significantly more positive meaning of time compared to those who do not have a MS date. However, the number of years they have to wait until their MS date did not appear to influence any of the time perception variables. Those inmates in the sample who do have a warrant expiry date (WED) tended to have a more positive meaning of time compared to those who do not, however the number of years the inmates have to wait until their WED does not appear to influence any of the time perception variables. Whether or not the inmates in the sample have a hearing, appeal, judicial review, retrial etc., in the future, and the number of year they have to wait until these dates did not appear to influence any of the time perception variables. However, those inmates who felt that their chances were good for being granted parole, for sentence acquittal, for getting a retrial etc., at these dates, tended to perceive time as passing less slowly in particular personal situations compared to those who do not have a date. By determining which date came sooner in time for the inmates, significant correlations were not obtained between this variable and the time perception variables. However, those inmates in the sample who felt that their chances were good for being released, granted parole, having their sentence reduced, or having their case come to trial again tended to have a more positive meaning of time compared to those who thought that their chances were poor.

Although over all, the results seem to indicate that the actual *physical* distance in time did *not* appear to generally influence the time perception variables, it does generally appear that the shorter the time of possible incarceration, or in other words, the less time that they have to wait until possible release, as determined by their definite sentence and length of life sentence until they are eligible for parole, the more they tended to perceive a positive meaning of time, to have a higher Consciousness Index (i.e. produce shorter intervals of 40 s) to focus more on the past or to focus on personal death. Therefore, the *perceived* goal distance in time, and the meaning and perceived importance of these dates may be more important in influencing subjective time perception compared to the actual *physical* distance in time. Whether or not they wished to be released on their MS date, what they thought their chances were for being released, granted parole, sentence acquittal, or having a retrial etc., at their hearing, appeal, judicial review or retrial, and what they thought their chances were for release, sentence acquittal, or having a retrial etc., at their next date that comes sooner in time, appeared to influence either Meaning or Slow Tempo. Gjesme (1981) found that "... the most significant determinant of perceived goal distance in time, in addition to physical distance in time, was the importance of the future goal; a very important goal being perceived as much closer than unimportant goal." (p. 175). If the date was perceived to be closer in time, then it is assumed that the inmates would be in more of a state of 'waiting' compared to if the date was perceived to be further away in time. Fraisse (1963) asserted that waiting is the basic condition for the awareness of the passage of time, and Smith (1975) discussed the assertion made by Piaget that there is an increased expenditure of energy when waiting which tends to produce the speeding up of subjective time. This is consistent with the finding in the inmate sample in that, those inmates waiting for a hearing, appeal, retrial etc., who perceived their chances to be good for being released, having their sentence reduced etc., tended to perceive time as passing less slowly in particular personal situations compared to those who were not waiting for these dates.

Approximately 4.9% of the variance in the Consciousness Index is predictable from knowing whether or not the inmates in the sample drank coffee or tea during the interview. Those inmates who did drink coffee or tea during the interview tended to have a higher Consciousness Index (i.e., produced shorter intervals) compared to those who did not. In their review of the literature, Krus and Fletcher (1986) reported that caffeine tends to result in the overestimation of clock time, and concluded from their study that overestimation of clock time is consistent with a faster tapping rate. This may be interpreted as having shorter units of internal time relative to clock units. This interpretation is similar to when a subject produces shorter intervals of time relative to the designated interval, which is consistent with the inmate sample results. Previous studies indicated that drug ingestion does influence time perception (Goldstone et al, 1958; Hicks et al, 1984). Because it was not known what type of drugs the subjects ingested, and because only three subjects were observed to be under the influence of drugs, this may account for no influence on the time perception variables. Hicks et al (1984) reported that nicotine increases subjective time rate (i.e., the rate at which subjective time passes relative to clock time) thus external time passes slowly (production of 10-45 s). However, whether or not the inmates were smoking *during* the interview did not appear to influence any of the time perception variables. Some of those inmates who did not smoke during the interview may have smoked before they were interviewed, which may account for the results. Whether or not the inmates were illiterate or had unescorted temporary absence privileges did not appear to influence any of the time perception variables.

Summary Of Findings

To summarize, of the biographical variables that were analysed, only those that influenced each time perception variable are reported in Table 4.19. Meaning appears to be influenced by seven biographical variables, and Future Orientation does not appear to have been influenced by any of them. Overall, it appears that 14 of the biographical variables analysed had some influence on subjective time perception by the inmates in the sample. It appears that the highest grade obtained in elementary or high school, whether or not the inmates in the sample were going to school or taking educational courses, and the number of years the inmates have been in this prison since admission, had some influence on subjective time perception. The housing area and the number of consecutive years housed in the area also seemed to influence subjective time perception. The type of sentence the inmates in the sample had determines whether they have mandatory supervision and warrant expiry dates. Because 6 of the 14 significant biographical variables address sentence related issues,

Table 4.19

Biographical Variables That Influenced The Time Perception Variables

Biographical Variables	Time Perception Variables						
	Meaning	Fast	Slow	Death	Future	Past	C.I.
Grade[a]	*						
School[a]		*					
Housing Area[a]	*						
Years Housed[a]						*	
Sentence[c]	*						
Years Definite[f]						*	*
Years Life[g]				*			
Years Admission[a]						*	
MS Date[b]	*						
Wish MS[c]	*						
WED[a]	*						

Table 4.19 Continued

Biographical Variables	Time Perception Variables						
	Meaning	Fast	Slow	Death	Future	Past	C.I.
Chances Hearing[d]			*				
Chances next[e]	*						
Coffee/Tea[a]							*

Note. The time perception variable that was influenced by the biographical variable is marked with an *, [a]n = 85, [b]n = 84, [c]n = 83, [d]n = 81, [e]n=79, [f]n=51, [g]n=32, Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention to Death, Future = Future Orientation, Past = Past Orientation, C.I. = Consciousness Index, Years Housed = number of consecutive years have been housed in the area, sentence = type of sentence, Years Definite = number of years those with a definite sentence were sentenced to, Years Life = number of years those with a life sentenced to before parole eligibility, Years Admission = number of years since admission to this prison, MS Date = mandatory supervision date, Wish MS = wish to be released on mandatory supervision date, WED = warrant expiry date, Chances hearing = chances for being granted parole, for sentence acquittal, for getting a retrial etc., at these dates, Chances Next = chances for parole, release, sentence acquittal etc. at date that is nearest in time.

especially between those serving a definite sentence and those serving life, it appears that whether or not the inmates were serving life or a definite sentence is an important biographical variable influencing subjective time perception. The two inmates who were serving an indefinite sentence, do not have MS or WED dates, so were similar, in this respect, to those serving life. It therefore appears that there may be two distinct biographical groups in the inmate sample that influence subjective time perception, those serving life or an indefinite sentence, and those serving a definite sentence. It also appears that the meaning and the perceived importance of upcoming dates may be more influential to subjective time perception compared to the actual physical distance in time.

Comparison Of The D&S Inmates With Those Housed Elsewhere

Introduction

The purpose of the analysis was to determine if there were any significant differences between those inmates housed in disassociation and segration (D&S) and those housed elsewhere in the prison on the well-being perception, time perception, and biographical variables. Inmates in D&S are usually locked in their cells for approximately 22 hours per day, and do not have free movement within or without the prison. They do not have access to the school area, cafeteria, work sites outside of D&S, the gymnasium, and other program areas outside of D&S. The following are some reasons for housing inmates in D&S. They may be from other correctional institutions, and are being held temporarily for court. Correctional authorities may have transferred them to D&S from the other prison areas for disciplinary reasons, or may have decided that they must be segregated from other inmates. Correctional authorities may have decided that the inmates require close observation. Inmates housed in population, health care, and induction are usually permitted free movement within the prison and to the outside prison grounds at specified times. They have access to the work sites and school area, the cafeteria, the gymnasium, and other program areas.

The variable for housing location was recoded into a new variable that includes two groups, those inmates housed in D&S, and those inmates housed elsewhere in the prison. Chi-square tests of independence, Pearson product moment correlations, t-tests for independent samples, and tests for equality of proportions were employed. The Chi-square test of independence tests for differences in frequencies of observed data and compares them with the frequencies that could be expected to occur if the data categories were actually independent of each other. If the value of the Chi-square statistics is equal to or greater than the value identified in the Chi-square table, there is a significant difference between the two variables (i.e., $p \leq .05$), but the analysis will not indicate where within the data the significant differences exist or the magnitude of the difference. Therefore, there are group differences in the categories of the variables and those differences are related to changes in the other variable. If the statistic chi-square is not significant, there is no difference in the distribution of the two variables, and they are considered independent. The requirement that each cell have a frequency of at least 5 has been mathematically demonstrated not to be necessary, however no cell may have a frequency of zero (Burns & Grove, 1987). If there was a significant difference, the test for equality of proportions was conducted to determine where within the data the significant differences exist (Fleiss, 1981). Also, the t-test for independent samples was used to determine if the means of the well-being perception, time perception, and biographical variables differed significantly between the two groups.

Analysis Of Results

Differences Between D&S Inmates And Those Housed Elsewhere On Well-Being Perception Variables

There was a significant weak positive correlation of the new housing variable with the PGWB Index indicating that those inmates housed in D&S tended to perceive a significantly lower level of general well-being compared to those housed elsewhere in the prison. Therefore, 9.1% of the variance in the PGWB Index is predictable from knowing whether the inmates were housed in D&S or elsewhere in the prison (See Table 4.20). Results from the t-test (see Table 4.21) indicate that those inmates in D&S tended to have a significantly lower PGWB Index mean (m = 53.6000) compared to those (m = 67.2308) housed elsewhere (2-tailed F,p = .230, critical t = -2.88, DF = 83, 2-tailed t-p = .005). The overall mean score of the PGWB Index for the inmates in D&S (m = 53.60) fit into the category of Severe Distress (i.e., Severe Distress scores range from 0-60), while the overall mean PGWB Index score for the inmates housed elsewhere (m = 67.23) fit into the category of Moderate Distress (i.e., Moderate Distress scores range from 61-72). However, the Chi-square test results indicated that significant differences were not obtained between the two groups on the PGWB categories of Severe Distress, Moderate Distress, and Positive Well-Being (chi-square = 5.13634, DF = 2, p = .0767, n = 85). Therefore the distribution of those inmates in Severe Distress, Moderate Distress, and Positive Well-Being was similar in D&S and elsewhere in the prison.

Of the six PGWB scales, significant weak positive correlations were obtained for the new housing variable with Depressed Mood, Positive Well-Being, Self-Control, and Vitality. Those inmates housed in D&S tended to perceive significantly more of a depressed mood, a lower level of positive well-being, less self-control, and less vitality compared to those housed elsewhere in the prison.

Table 4.20

Correlations Of PGWB Variables With The Two Housing Groups

PGWB Variable	Housing Area (1 = D&S, 2 = Elsewhere)
Anxiety	.1693 $p = .121$ $r^2 = .029$
Depressed Mood	.3529 $p = .001$* $r^2 = .125$
Positive Well-Being	.3565 $p = .001$* $r^2 = .127$
Self-Control	.2145 $p = .049$* $r^2 = .046$
General Health	.0197 $p = .858$ $r^2 = .000$
Vitality	.2844 $p = .008$* $r^2 = .081$
PGWB Index	.3010 $p = .005$* $r^2 = .091$

Note. $n = 85$, 2-tailed *$p<.05$, D&S = disassociation & segregation, Elsewhere = housed in population, health care or induction; the higher the score for Anxiety and Depressed Mood, the less the perception of Anxiety and Depressed Mood, and the lower the scores, the more the Anxiety and Depressed Mood, PGWB = Psychological General Well-Being.

Table 4.21

Means And Standard Deviations (SD) Of PGWB Variables For Housing Variable

PGWB Variable	Housing Area	Mean	SD
Anxiety	D&S (n=20)	11.7500	6.095
	Elsewhere (n=65)	13.9847	5.424
Depressed Mood*	D&S (n=20)	7.4000	4.418
	Elsewhere (n=65)	10.6308	3.426
Positive Well-Being*	D&S (n=20)	7.0000	4.205
	Elsewhere (n=65)	10.5077	3.865
Self-Control*	D&S (n=20)	9.5500	3.203
	Elsewhere (n=65)	11.1538	3.114
General Health	D&S (n=20)	8.8500	3.498
	Elsewhere (n=65)	9.0000	3.202
Vitality*	D&S (n=20)	9.0500	5.326
	Elsewhere (n=65)	11.9538	3.806
PGWB Index*	D&S (n=20)	53.6000	21.515
	Elsewhere (n=65)	67.2308	17.552

Note. 2-tailed *$p \leq .05$, n = sample size, D&S = disassociation & segregation, Elsewhere = housed in population, health care, induction, the higher the means for Anxiety and Depressed Mood, the less the Anxiety and Depressed Mood, and the lower the means, the more the Anxiety and Depressed Mood, PGWB = Psychological General Well-Being.

Therefore, 12.5% of the variance in Depressed Mood, 12.7% of the variance in Positive Well-Being, 4.6% of the variance in Self-Control and 8.1% of the variance in Vitality is predictable from knowing whether the inmates were housed in D&S or elsewhere in the prison (see Table 4.20). Also the t-test results indicated that those inmates in D&S tended to have significantly lower means for Depressed Mood, (2-tailed F,p = .135, critical t = -3.44, DF = 83, 2-tailed t-p = .001), Positive Well-Being (2-tailed F,p = .598, critical t=-.348, DF = 83, 2-tailed t-p = .001), Self-Control (2-tailed F,p = .826, critical t = -2.00, DF = 83, 2-tailed t-p = .049), and Vitality (2-tailed F,p = .048, critical t = -2.70, DF = 83, 2-tailed t-p = .008), compared to those housed elsewhere (see Table 4.21).

Differences Between D&S Inmates And Those Housed Elsewhere On Time Perception Variables

Of the seven time perception variables, only Meaning correlated significantly with the new housing variable, and the correlation indicated a weak positive relationship. Those inmates housed in D&S tended to perceive a significantly less positive meaning of time compared to those housed elsewhere in the prison. Therefore, 9.3% of the variance in Meaning is predictable from knowing whether the inmates were housed in D&S or elsewhere in the prison (see Table 4.22). Results from the t-test (see Table 4.23) indicate that those inmates in D&S tended to have a

Table 4.22

Correlations Of Time Perception Variables With The Two Housing Groups

Time Perception Variable	Housing Area (1 = D&S, 2 = Elsewhere)
Meaning	.3050 $p = .005^*$ $r^2 = .093$
Fast Tempo	.0772 $p = .483$ $r^2 = .006$
Slow Tempo	-.0860 $p = .434$ $r^2 = .007$
Attention To Death	-.1262 $p = .250$ $r^2 = .016$
Future Orientation	.1649 $p = .132$ $r^2 = .027$
Past Orientation	-.1197 $p = .275$ $r^2 = .014$
Consciousness Index	.0779 $p = .479$ $r^2 = .006$

Note. $n = 85$, 2-tailed $^*p \leq .05$, D&S = disassociation & segregation, Elsewhere = housed in population, health care or induction.

Table 4.23

Means And Standard Deviations (SD) Of Time Perception Variables For Housing Variable

PGWB Variable	Housing Area	Mean	SD
Consciousness Index	D&S (n=20)	1.3045	.552
	Elsewhere (n=65)	1.4228	.676
Meaning*	D&S (n=20)	3.8600	1.170
	Elsewhere (n=65)	4.6108	.952
Fast Tempo	D&S (n=20)	3.7350	.760
	Elsewhere (n=65)	3.86627	.717
Slow Tempo	D&S (n=20)	4.0900	.876
	Elsewhere (n=65)	3.9308	.765
Attention To Death	D&S (n=20)	3.2350	1.330
	Elsewhere (n=65)	2.9077	1.028
Future Orientation	D&S (n=20)	4.2200	.881
	Elsewhere (n=65)	4.5277	.761
Past Orientation	D&S (n=20)	4.3750	.922
	Elsewhere (n=65)	4.1138	.933

Note. 2-tailed *$p \leq .05$, n = sample size, D&S = disassociation & segregation, Elsewhere = housed in population, health care, induction.

significantly lower mean for Meaning (m = 3.8600) compared to those (m = 4.6108) housed elsewhere (2-tailed F,p = .225, critical t = -2.92, DF = 83, 2-tailed t-p = .005).

Differences Between D&S Inmates And Those Housed Elsewhere On Biographical Variables

In keeping with the purpose of the analysis, and because of the large number of biographical variables analysed, mainly those that were determined to be significantly different between the groups are discussed. However, all the results of the correlational analysis, Chi-square tests, and t-tests are reported in Tables 4.24, 4.25, and 4.26 respectively. Of the 22 correlations conducted, only 4 correlations were statistically significant. Of the 14 Chi-square test employed, only 3 were statistically significant.

There was a significant weak positive correlation of the new housing variable with grade indicating that those inmates in the sample housed in D&S tended to have completed a significantly lower grade of elementary or high school compared to those housed elsewhere in the prison (see Table 4.24). Therefore, 7.6% of the variance in housing area is predictable from knowing the highest grade completed. Results from the t-test (see Table 4.26) indicate that those inmates in D&S tended to have completed a significantly lower mean grade at school (m = 8.9500) compared to those (m = 10.4923) housed elsewhere (2-tailed F,p = .088, critical

Table 4.24

Correlations Of Biographical Variables With New Housing Variable

Variable	n	Housing Area (1 = D&S, 2 = Elsewhere)
Age	85	.1419 p = .195
Highest Grade Completed	85	.2760 p = .011*
Number of Jobs	85	-.1223 p = .265
Work (1 = Working, 2 = not Working)	85	-.5595 p = .000*
School (1 = taking educational courses) (2 = not taking courses)	85	-.0395 p = .720
Work/School (1 = working/taking courses) (2 = not working/taking courses)	85	-.5547 p = .000*
Years Housed	85	.2127 p = .051
Years Since Admission	85	.1552 p = .156
Years In Correctional Facilities	85	-.0394 p = .720

Table 4.24 Continued

Variable	n	Housing Area (1 = D&S, 2 = Elsewhere)
Years Since Not A Prisoner	85	-.0140 p = .899
Years Of Definite Sentence	51	.1550 p = .277
Years Of Life Sentence	32	.3083 p = .086
Years Since Last Parole Eligibility	49	-.0313 p = .831
Years Until Next Parole Eligibility	75	.2214 p = .056
Years Until Mandatory Supervision	50	.1143 p = .429
Years Until Warrant Expiry Date	51	.0230 p = .873
Years Until Soonest Date	84	.1544 p = .161
Literacy (0 = literate, 1 = illiterate)	85	-.2696 p = .013*
Condition Other Than Normal (0 = Not CON, 1 = CON)	85	-.0442 p = .688

Table 4.24 Continued

Variable	n	Housing Area (1 = D&S, 2 = Elsewhere)
Smoking During Interview (0 = Not Smoking, 1 = Smoking)	85	-.2011 p = .065
Drinking Coffee/Tea During Interview (0 = Not Drinking, 1 = Drinking)	85	-.0313 p = .776
Unescorted Temporary Absence (0 = No Privileges, 1 = Privileges)	85	.0861 p = .433

Note. 2 -tailed $*p \le .05$, n = sample size, D&S = disassociation & segregation, Elsewhere = housed in population, health care, or induction.

Table 4.25

Crosstabulation Of Biographical Variables By New Housing Variable

Variable	Chi-square	DF	p
Marital Status	8.06323	5	.1528
Highest Educational Credential	4.29939	3	.2309
Shortest Time Employed Outside Prison	7.00010	8	.5366
Longest Time Employed Outside Prison	5.85607	9	.7542
Three Types of Sentence	1.29407	2	.5236
Two Types of Sentence	.06811	1	.7941
Last Parole Eligibility Date	1.79341	2	.4079
Whether Parole Granted Last Date	4.86166	3	.1822
Next Parole Eligibility Date	6.71064	2	.0349*
Chances Next Parole Eligibility Date	18.96224	4	.0008*
Mandatory Supervision Date	.64077	2	.7259
Wish To Be Released On Mandatory Supervision	2.54274	3	.4676
Warrant Expiry Date	.06811	1	.7941
Chances At Soonest Date	14.71327	2	.0006*

Note. $n = 85$, $*p \leq .05$, DF = Degrees of freedom, Three types of sentence = definite, life, indefinite; Two types of sentence = definite, and life or indefinite.

Table 4.26

Means And Standard Deviations (SD) Of Biographical Variables For New Housing Variable

Biographical Variable	Housing Area	Mean	SD
Age	D&S (n=20)	32.1000	8.497
	Elsewhere (n=65)	35.1846	9.449
Highest Grade Completed*	D&S (n=20)	8.9500	2.837
	Elsewhere (n=65)	10.4923	2.122
Number of Jobs Outside Prison	D&S (n=20)	6.7000	10.863
	Elsewhere (n=65)	4.2923	7.502
Years Housed	D&S (n=20)	.6020	.670
	Elsewhere (n=65)	1.4054	1.767
Years Since Admission	D&S (n=20)	2.3770	2.866
	Elsewhere (n=65)	3.4291	2.878
Years In Correctional Facilities	D&S (n=20)	11.1415	8.786
	Elsewhere (n=65)	10.5363	5.783
Years Since Not A Prisoner	D&S (n=20)	5.0120	6.286
	Elsewhere (n=65)	4.8678	3.707
Years Of Definite Sentence	D&S (n=13)	6.4177	4.339
	Elsewhere (n=38)	8.3126	5.647
Years Until Parole For Life Sentence	D&S (n=6)	15.1667	7.679
	Elsewhere (n=26)	20.3462	6.164
Years Since Last Parole Eligibility	D&S (n=14)	1.8229	3.068
	Elsewhere (n=35)	1.6306	2.741
Years Until Next Parole Eligibility	D&S (n=16)	1.3069	1.394
	Elsewhere (n=59)	4.3831	6.273

Table 4.26 Continued

Biographical Variable	Housing Area	Mean	SD
Years Until Next Parole Eligibility	D&S (n=16)	1.3069	1.394
	Elsewhere (n=59)	4.3831	6.273
Years Until Mandatory Supervision Date	D&S (n=13)	1.9015	1.604
	Elsewhere (n=37)	2.4514	2.291
Years Until Warrant Expiry Date	D&S (n=13)	4.4854	3.976
	Elsewhere (n=38)	4.6858	3.846
Years Until Soonest Date	D&S (n=19)	1.2005	1.313
	Elsewhere (n=65)	2.6506	4.392

Note. 2-tailed $^*p \leq .05$, n = sample size, D&S = disassociation & segregation, Elsewhere = housed in population, health care, or induction.

t = -2.62, DF = 83, 2-tailed t-p = .011).

There was a significant moderate negative correlation for the new housing variable with work indicating that those inmates in the sample housed in D&S tended not to be working while those housed elsewhere tended to be working (see Table 4.24). This is expected because inmates housed in D&S are not permitted movement to other prison areas so, therefore, can not work, and there is limited work available in the D&S area. The non-significant correlation between school and housing area may be partially explained because the school teacher comes to D&S for educational purposes, and D&S inmates may continue their studies (see Table 4.24). There was a significant moderate negative correlation of the new housing variable with work/school indicating that those inmates in the sample in D&S tended not to be working and/or going to school or taking educational courses, and those housed elsewhere tended to be, which is expected.

The Chi-square test indicated that there were significant differences between the groups with whether or not they have a next parole eligibility date (PED) (see Table 4.25), however, results from the equality of proportions test indicated that the proportion of inmates that are in D&S that have a next PED (n = 16, 80.0%) were equivalent to the proportion of inmates that have a next PED (n = 59, 90.8%) housed elsewhere (p = .363). Therefore the differences between the groups were not large. Because there was an empty cell for inmates housed elsewhere in the prison who did not know their next PED, and only two inmates in D&S who did not know their PED, the "do not know" category could not be analysed.

Results from the Chi-square test determined that there was a significant difference between the groups with what they thought their chances were for being granted parole at their next PED (see Table 4.25). Results from the equality of proportions test indicated that the proportion of inmates housed in D&S who felt that their chances were good (n = 5, 25.0%) was significantly lower than the proportion of inmates housed elsewhere (n = 42, 64.6%) who felt that their chances were good (p = .004). The proportion of inmates housed in D&S who felt that their chances were poor (n = 11, 55.0%)was significantly higher than the proportion of inmates housed elsewhere (n = 7, 10.8%) who felt that their chances were poor (p = .00009). The proportion of inmates in D&S who did not know their chances for parole (n = 2, 10.0%) was equivalent to the proportion of inmates housed elsewhere (n = 9, 13.8%) who did not know their chances for parole (p = .946). There was an empty cell for the inmates in D&S who will waive their PED and only one inmate housed elsewhere who will waive his PED so this category could not be analysed. Since *one* of the reasons for being in D&S is for disciplinary purposes, more inmates in D&S may perceive this as lessening their chances for parole. However, they may have already assessed their chances for parole even before coming to D&S. However, there are other reasons for being in D&S.

Because there were no D&S inmates who have a hearing, appeal, judicial review, retrial etc., whether or not they had these dates and what they felt their chances were at these dates could not be analysed. Chi-square test results indicated that there were significant differences between the groups as to what they felt their chances were for parole eligibility, release, sentence reduction, or having a retrial etc., at the soonest date (i.e., PED, MS, hearings, appeal etc.) (see Table 4.25). Results of the equality of proportions tests determined that the proportion of inmates in D&S who felt that their chances were good (n = 8, 40.0%) was significantly lower than the proportion of inmates housed elsewhere (n = 46, 70.8%) who felt that their chances were good (p = .025). The proportion of inmates in D&S who felt that their chances were poor (n = 10, 50.0%) was significantly higher than the proportion of inmates housed elsewhere (n = 7, 10.8%) who felt that their chances were poor (p = .0004). The proportion of inmates in D&S who did not know their chances (n = 2, 10.0%) was equivalent to the proportion of inmates housed elsewhere (n = 12, 18.5%) who did not know their chances (p = .584).

There was a significant weak negative correlation for the new housing variable with literacy indicating that those inmates housed in D&S tended to be significantly more illiterate, and those housed elsewhere in the prison tended to be significantly more literate (see Table 4.24). However, these results should be interpreted with caution because only 4 out of the 85 inmates in the sample were illiterate of which 3 were housed in D&S.

Discussion Of Results

Those inmates in the sample who were housed in D&S tended to perceive significantly more of a depressed mood, less positive well-being, less self-control, less vitality, a lower level of general well-being, and a less positive meaning of time compared to those inmates housed elsewhere in the prison. It is not known whether having these perceptions was the result of being in the environment of D&S, or whether it was these perceptions to begin with that led to behavior, such as verbal outbursts, fighting, self-mutilation, drug/alcohol intoxication, that resulted in their being transferred to D&S. Perhaps it was a little of both. Those inmates in D&S also tended to have completed a significantly lower grade at school compared to those housed elsewhere in the prison. The question is posed as to whether those inmates with a higher education may have better abilities to deter and evade institutional authorities so that they are not sent to D&S. Perhaps, inmates with a lower education level in D&S were more willing to see the researcher so as to provide some relief from their isolation. Because inmates in D&S cannot move out of the area to work, and work in D&S is limited, they would naturally be less involved in formal activity. Having completed a lower grade at school, and less formal activity involvement may have tended to lessen subjective well-being, and promoted a less positive meaning of time. More inmates housed elsewhere in prison felt that their chances were good, and more inmates housed in D&S felt that their chances were poor for obtaining parole, being released sentence reduction, having a retrial at their next parole eligibility date, and at their soonest date (i.e., PED, MS, or hearings, appeal. etc.). The question is posed as to whether they had these perceptions before they came to D&S, or whether they were the result of being D&S. These perceptions may have tended to influence their subjective well-being and meaning of time that may have influenced their behavior that resulted in their transfer to D&S.

Regression Analysis Of Results

Introduction

The results of the preceding analysis indicate that the D&S inmates did tend to significantly differ from the inmates housed elsewhere in the prison on five of the seven well-being perception variables, on the time perception variable of Meaning, and on seven other biographical variables. The purpose of the regression analysis was to determine the effects of where the inmates were housed, while considering the effects of some of the other biographical variables, on the seven well-being perception and seven time perception variables. With this aim, the new housing biographical variable was entered last into the regression equations, while forwarding some of the other biographical variables first into the equations. At each step in forward entry, the variable with the smallest probability of F-value was entered, if the value is smaller than the entry criterion of .05, and if the variable passed the tolerance tests. This would determine how much variance the new housing biographical variable accounted for in the well-being perception variables, and in the time perception variables, while taking into account the effects of some of the other biographical variables.

The standardized slopes were used to determine the relative effects of the biographical variables on the dependent variables of time and well-being perception. Because the scales used to measure the variables can have different variance, standardizing the scores weights all the variances equally. Therefore, comparisons can be made between variables for their relative ranking on these standardized scores. Standardized slopes are for variables that all have a mean equal to zero and a variance equal to one. When comparisons were not being made between the slopes of different variables the unstandardized slopes (i.e., B) were interpreted.

The adjusted R^2 value, rather than the R^2 value, was interpreted, although the R^2 values were also stated for the significant variables. The adjusted R^2 corrects for the bias present in the R^2 value by considering the number of predictor variables and the sample size. The following equation indicates how the R^2 adjusted value is calculated: $R^2 \text{ adjusted} = R^2 - \frac{(1 - R^2)K}{N - K - 1}$ where K = the number of independent variables, and n = 85. The R^2 value indicates how well the model fits in this particular sample. The adjusted R^2 value indicates how well the model is likely to fit in a different sample.

Therefore, 14 separate regression equations were conducted when each of the well-being perception variables and the time perception variables were considered the dependent variable. The following three biographical variables were eliminated from the equations: work, because it was included in the variable work/school; what they felt their chances were at their next PED, and what they felt their chances were at their soonest date (i.e., PED, MS, hearings, appeals, etc.), because these are not at the interval level. Therefore, the four other biographical variables that were entered as independent variables were the following: grade, work/school, next PED, and literacy, and the new housing variable was forced to enter last.

Analysis Of Results

When interpreting the results, it is recognized that any other causally effective variables that the significant independent variable may be related to but were not included in the analysis will have an effect on the dependent variable.

When Depressed Mood was entered as the dependent variable, grade entered first into the regression equation because it has the smallest probability of F-value. Grade accounted for 13.0% of the significant variance in Depressed Mood. The R^2 value was .14067. Work/school then entered into the equation and accounted for 3.0% additional significant variance in Depressed Mood. The R^2 value was .18061. However, whether or not they have a next parole eligibility date (PED), literacy, and the new housing variable did not account for any additional significant variance in Depressed Mood (see Table 4.27).

The positive standardized slope of Depressed Mood and grade indicates that as the standardized scores for the highest grade completed at school increases one standardized unit, the standardized scores for Depressed Mood tended to significantly increase by .33405 standardized units (i.e., perceive less of a depressed mood), and as the standardized scores for the highest grade completed decreases one standardized unit, the standardized scores for Depressed Mood tended to significantly decrease by .33405 standardized

Table 4.27

Explained And Unique Variance Of Biographical Variable On Dependent Variables

x = grade, work/school, next PED^a, literacy all entered into equation

Dependent	Independent	F,p	Adjusted R^2	Adjusted $R^{2\ \text{Change}}$
Depressed Mood	Grade	.004*	.13032	
	Work/School	.003*	.16063	.03031
	Housing	.0002*	.18427	NS
Positive Well-Being	X	NS		
	Housing	.0008*	.11659	
Self-Control	Whether Next PED^a	.0133*	.06039	
	Housing	.0088*	.08718	NS
Vitality	Literacy	.0086*	.06913	
	Housing	.0038*	.10558	.03645
PGWB Index	Work/School	.0378*	.03952	
	Housing	.0162*	.07355	.03403
Meaning	Grade	.0052*	.07938	
	Housing	.0017*	.12284	.04346

Note. *F,$p \leq .05$, n = 85, ^{a}n = 83, Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed, Next PED (1 = have a next parole eligibility date, 2 = do not have a next parole eligibility date), Literacy (0 = literate, 1 = illiterate), NS = Not Significant, Adjusted R^2 Change = Preceding Adjusted R^2 - Adjusted R^2 (unique variance).

units (i.e., perceive more of a depressed mood). The negative standardized slope of work/school indicates that as the work/school variable scores increase one standardized unit (i.e., change from working/going to school or taking educational courses to not working/going to school or taking courses), the scores for Depressed Mood tended to decrease by .20402 standardized units (i.e., perceive more of a depressed mood), and as the work/school variable scores decrease one standardized unit (i.e., change from not working/going to school or taking educational courses to working/going to school), the scores for Depressed Mood tended to significantly increase by .20402 standardized units (i.e., perceive less of a depressed mood) (see Table 4.28). Therefore, the highest grade completed at school had relatively more of an effect on the perception of Depressed Mood than the variable, work/school, because the standardized slope was larger.

The four biographical variables did not account for any significant variance in Positive Well-being, but the new housing variable accounted for 11.7% of its significant variance (see Table 4.27). The R^2 value was .12711. The positive unstandardized slope of Positive well-Being and the new housing variable (B = 3.50769) indicates that as the new housing variable increases one unit (i.e., changes from D&S to elsewhere), the raw scores for Positive Well-Being tended to significantly increase by 3.51 units (i.e., perceive more

Table 4.28

Standardized Slopes (Beta) Of Dependent Variables And Biographical Variables

Dependent Variable	Independent Variable	Beta	t	t-p
Depressed Mood	Grade	.33405	3.274	.0016*
	Work/School	-.20402	-1.999	.0489*
	Next PED[a]			NS
	Literacy			NS
	Housing		1.838	.0698
Positive Well-Being	Grade			NS
	Work/School			NS
	Next PED[a]			NS
	Literacy			NS
	Housing	.35653	3.477	.0008*
Self-Control	Grade			NS
	Work/School			NS
	Next PED[a]	-.26754	-2.530	.0133*
	Literacy			NS
	Housing		1.854	.0674
Vitality	Grade			NS
	Work/School			NS
	Next PED[a]			NS
	Literacy	-.22274	-2.079	.0408*
	Housing	.22431	2.093	.0394*
PGWB Index	Grade			NS
	Work/School	-.08484	-.672	.5034
	Next PED[a]			.NS
	Literacy			.NS
	Housing	.25399	2.012	.0475*

Table 4.28 Continued

Dependent Variable	Independent Variable	Beta	t	t-p
Meaning	Grade	.23422	2.203	.0304*
	Work/School			NS
	Next PED[a]			NS
	Literacy			NS
	Housing	.24039	2.261	.0264*

Note. *t-$p \leq .05$, n = 85, [a]n = 83, NS = not significant, PED = parole eligibility date, Grade = highest grade completed, Housing (1 = D&S, 2 = Elsewhere), Next PED (1 = have a next PED, 2 = do not have a next PED), Work/School (1 = working/taking educational courses, 2 = not working/taking courses), Literacy (0 = literate, 1 = illiterate), the higher the score on Anxiety & Depressed Mood, the less the Anxiety & Depressed Mood, the lower the scores, the more the Anxiety & Depressed Mood.

positive well-being), and as the new housing variable decreases by one unit (i.e., changes from elsewhere to D&S), the raw scores for Positive Well-Being tended to significantly decrease by 3.51 units (i.e., perceive less positive well-being) (see Table 4.28 for standardized slope).

When Self-Control was entered as the dependent variable, the independent variable, whether or not the inmates have a next PED, entered into the regression equation first because it had the smallest probability of F-value. It accounted for 6.0% of the variance in Self-Control. The R^2 value was .07158. All the other biographical variables, including the new housing variable, did not account for any additional significant variance in Self-Control (see Table 4.27). The negative unstandardized slope of Self-control and next PED (B = -1.42362) indicates that as next PED increases one unit (i.e., changes from having a next PED to not having a next PED), the raw scores for Self-Control tended to decrease by 1.42362 units (i.e., perceive less self-control), and as the next PED decreases by one unit (i.e., changes from not having a next PED to having a next PED), the raw scores for Self-Control tended to increase by 1.42362 units (i.e. perceive more self-control) (see Table 4.28 for standardized slope).

When Vitality was entered as the dependent variable, the independent variable, literacy, accounted for 6.9% of the significant variance in Vitality. The R^2 value was .08022. The new housing variable accounted for an additional 3.6% of the significant variance in Vitality (see Table 4.27). The R^2 value was .12687. The other biographical variables did not account for any additional significant variance in Vitality. The negative standardized slope of Vitality and literacy indicates that as literacy increases by one standardized unit (i.e, changes from literate to illiterate), the standardized scores for Vitality tended to significantly decrease by .22274 standardized units (i.e., perceive less vitality), and as literacy decreases by one standardized unit (i.e., changes from illiterate to literate), the standardized scores for Vitality tended to significantly increase by .22274 standardized units (i.e., perceive more vitality). The positive standardized slope of Vitality and the new housing variable indicates that as the new housing variable increases by one standardized unit (i.e., changes from D&S to elsewhere), the standardized scores for Vitality tended to significantly increase by .22431 standardized units (i.e., perceive more vitality), and as the new housing variable decreases by one standardized unit (i.e., changes from elsewhere to D&S), the standardized score for Vitality, tended to significantly decrease by .22431 standardized units (i.e. perceive less vitality). Therefore, the new housing variable had more of a significant effect on the perception of Vitality compared to literacy because the standardized slope was larger.

When the PGWB Index was entered as the dependent variable, work/school entered first into the regression equation because it had the smallest probability of F-value. Whether or not the inmates were working and/or going to school or taking educational courses accounted for 4.0% of the variance in the PGWB Index. The R^2 value was .05095. The new housing variable uniquely accounted for 3.4% of the variance in the PGWB Index (see Table 4.27). The R^2 value was .09561. When the new housing variable was entered into the equation, work/school no longer contributed any additional significant variance to the PGWB Index because the slope became non-significant (see Table 4.28). The other biographical variables did not account for any additional significant variance in the PGWB Index. The positive unstandardized slope for the new housing variable (B = 11.5) indicates that as the new housing variable increases one unit (i.e., changes from D&S to elsewhere), the PGWB Index raw scores tended to significantly increase by 11.5 units (i.e., perceive higher level of general well-being), and as the new housing variable decreases by one unit (i.e., changes from elsewhere to D&S), the PGWB Index raw scores tended to significantly decrease by 11.5 units (i.e., perceive lower level of general well-being) (see Table 4.28 for standardized slope).

When Meaning was entered as the dependent variable, grade entered first into the regression equation because it had the smallest probability of F-value. Grade accounted for 7.9% of the variance in Meaning (see Table 4.27). The R^2 value was .09034. The new housing variable uniquely accounted for 4.3% of the significant variance in Meaning (see Table 4.27). The R^2 value was .14372. The other biographical variables did not account for any additional significant variance in Meaning.

The positive standardized slope of Meaning and grade indicates that as the standardized score for the highest grade completed increases by one standardized unit, the standardized scores for Meaning tended to significantly increase by .23422 standardized units (i.e., perceive a more positive meaning) and as the standardized scores for the highest grade completed decreases by one standardized unit, the standardized scores for Meaning tended to significantly decrease by .23422 standardized units (i.e., Perceive a less positive meaning) (see Table 4.28). The positive slope of Meaning and the new housing variable indicate that as the new housing variable increases by one standardized unit (i.e., changes from D&S to elsewhere), the standardized scores for Meaning tended to significantly increase by .24039 standardized units (i.e., perceive a more positive meaning), and as the new housing variable decreases by one standardized unit, (i.e., changes from elsewhere to D&S),

the standardized scores for Meaning tended to significantly decrease by .24039 standardized units (i.e., perceive a less positive meaning of time). Therefore, the new housing variable had more of a significant effect on the perception of the meaning of time than the highest grade completed at school because the slope was larger.

When the well-being perception variables of Anxiety and Depressed Mood, and the time perception variables of Fast Tempo, Slow Tempo, Attention to Death, Future Orientation, Past Orientation, and the Consciousness Index were each entered as the dependent variable, none of the biographical variables analysed, including the new housing variable, explained any significant variance in them.

Discussion Of Results

The highest grade the inmates completed at school, and whether or not they were working and/or going to school or taking educational courses explained 16.1% of the variance in the perception of Depressed Mood. Work/school uniquely explained 3.0% of the variance in Depressed Mood. Grade had more of a significant relative effect on their perceptions of Depressed Mood compared to work/school. Those inmates in the sample who perceived more of a depressed mood tended to have completed significantly less grades of elementary or high school, and tended to not be involved in the formal activity of working and/or going to school or taking education courses, whereas those inmates who perceived less of a depressed mood, tended to have completed significantly more grades, and do tended to be involved in formal activity, regardless of whether they were housed in D&S or elsewhere in the prison. It is not known whether non-involvement in this formal activity caused or was caused by the perception of more of a depressed mood. It does appear however, that a lower educational level may contribute to the perception of more of a depressed mood. Housing and the other four biographical variables did not explain any of the significant variance in the perception of Depressed Mood.

Whether the inmates were housed in D&S or elsewhere explained 11.7% of the significant variance in Positive Well-Being, while none of the other biographical variables had any significant effect on their perceptions of Positive Well-Being. The scale for Positive Well-Being has a range of 0 to 20 possible scores. Because the new housing variable significantly affected the raw scores by 3.5 units (B = 3.50769), it has quite a significant effect on the perception of Positive Well-Being. Those inmates in D&S tended to perceive significantly less positive well-being compared to those housed elsewhere. However, it is not known whether this perception was caused by being in D&S, or whether the inmates had this perception before coming to D&S. Having a lower positive well-being perception may have influenced their behavior, such as verbal outbursts, self-mutilation, fighting, and drug/alcohol intoxication, that resulted in their transfer to D&S. However, the actual environment of D&S, and the reasons for being in D&S may also have contributed to this perception.

While whether or not the inmates in the sample have a next parole eligibility date (PED) explained only 6.0% of the variance in Self-Control, this variable affected the raw scores for the Self-Control scale by 1.4 values (B = -1.42362). The scale for Self-Control has a range of 0 to 15 possible scores, therefore, whether or not the inmates have a next PED had some significant effects on the perception of Self-Control. Those inmates in the sample who do not have a next PED tended to perceive significantly less self-control, and those inmates who do have a next PED tended to perceive significantly more self-control, regardless of where they were housed.

Whether or not the inmates were literate, and where they were housed explained 10.6% of the variance in their perception of Vitality. Where they were housed uniquely explained 3.6% of the variance in the perception of Vitality, and had more of an affect on Vitality than literacy. Those inmates in the sample who were illiterate, and who were housed in D&S tended to perceive significantly less vitality, and those who were literate and housed elsewhere tended to perceive significantly more vitality. Since there were only 4 illiterate inmates out of 85 inmates in the sample, of whom 3 were in D&S, the representativeness of illiteracy was very small. These results should therefore be interpreted with caution. It is not known whether the perception of less vitality existed before the inmates came to D&S, or whether it was the result of being in the environment of D&S, or both. However, the perception of less vitality may have led to behavior, such as drug and alcohol intoxication, that may have resulted in their transfer to D&S. However, it is more probable that the environment of D&S itself contributed largely to this perception. The other biographical variables analysed did not have a significant effect on the perception of Vitality.

Whether or not the inmates in the sample were involved in work/school or taking educational courses, and where they were housed explained 7.9% of the variance in the PGWB Index. Whether they were housed in D&S or elsewhere in the prison uniquely explained 4.3% of the variance in the PGWB Index, and its influence resulted with work/school no longer explaining a significant portion of the variance in the PGWB Index. The scores for the PGWB Index have a range of 0 to 110 possible scores. Because the new housing variable significantly affected the raw scores by 11.5 units, it had a significant effect on the perception of general well-being. Those inmates in the sample who were housed in D&S tended to perceive a significantly lower level of general well-being, and those inmates housed elsewhere in the prison tended to perceive a significantly higher level of general well-being. However, it is not known whether the perception of a lower general level of well-being led to behavior, such as verbal outbursts, fighting, self-mutilation, drug/alcohol intoxication, that resulted in their transfer to D&S, or whether the actual environment of D&S, and the reasons for being in D&S accounted for this perception. The other biographical variables had no significant effect on the level of general well-being.

Grade and the new housing variable explained 12.3% of the significant variance in the meaning of time. Whether they were housed in D&S or elsewhere in the prison uniquely explained 4.3% of the variance in the meaning of time, and had more of a relative significant effect on the meaning of time compared to the highest grade completed at school. Those inmates in the sample who completed a significantly lower grade of elementary or high school, and those inmates who were housed in D&S tended to perceive a significantly less positive meaning of time, while those inmates who completed a significantly higher grade, and who were housed elsewhere in the prison tended to perceive a significantly more positive meaning of time. It does appear that a lower completed grade at school may result in a less positive meaning of time. However, it is not known whether the perception of a less positive meaning of time led to behavior that resulted in their transfer to D&S, or whether the environment of D&S and the reasons for being in D&S

resulted in this perception. Perhaps the perception of a less positive meaning of time was a result of both.

Summary Of Results

To summarize, the significant effects of the new housing biographical variable and the other biographical variables analysed on the well-being perception and time perception variables are reported in Table 4.29. Whether the inmates were housed in D&S or elsewhere was the only biographical variable that significantly affected the inmates' perceptions of Positive Well-Being, and it removed the significant effect of work/school on their perception of general well-being, resulting in it being the only biographical variable analysed that had a significant effect on their perceptions of general level of well-being (PGWB Index). Where the inmates were housed did not have a significant effect on their perceptions of Depressed Mood, but grade and work/school did have significant effects. Where they were housed did not have a significant effect on their perceptions of self-control, but whether or not they had a next parole eligibility date did have a significant effect. Where they were housed, and whether or not they were literate both had significant effects on their perceptions of Vitality. However, because only 4 out of 85 inmates were illiterate, of whom 3 were in D&S, the results should be interpreted with caution. Where they were housed and the highest grade completed both had significant effects

Table 4.29

Effects Of New Housing Variable And Other Biographical Variables On Well-Being And Time Perception Variables

Dependent Variable	Independent Variables				
	Grade	Work/School	Next PED	Literacy	Housing
Depressed Mood	*	*			
Positive Well-Being					*
Self-Control			*		
Vitality				*	*
PGWB Index		*a			*
Meaning	*				*

Note. The variables marked with an asterisk* indicate that the biographical variable had a significant effect ($p \leq .05$) on the dependent variable, *a = the significant effect of work/school on the PGWB Index was removed when the Housing variable was entered into the analysis, PED = parole eligibility date, Housing (1 = disassociation & segregation, 2 = elsewhere).

on their perceptions of the meaning of time.

Comparison Of The Inmates Serving Life Or Indefinite Sentences With Those Serving Definite Sentences

Introduction

The purpose of the analysis was to determine if there were any significant differences between those inmates serving a life or indefinite sentence with those serving a definite sentence on the well-being perception, time perception, and biographical variables. Inmates serving a life or indefinite sentence do not have mandatory supervision (MS) or Warrant expiry dates (WED). They may apply for parole at specified times, but usually will be incarcerated for a longer period of time. Inmates serving life will be under the supervision of the correctional or parole authorities for life, and those serving an indefinite sentence will be under their supervision indefinitely. Inmates serving a definite sentence have MS dates (i.e., the authorities usually release them after they have served approximately two-thirds of their sentence), and WED's (i.e., a specified date when they will no longer be under the supervision of the correctional or parole system). They also have parole eligibility dates (PED). They therefore tend to be incarcerated for shorter periods of time.

The variable for type of sentence was recoded into a new variable that includes two groups, those inmates with a life or indefinite sentence, and those inmates with a definite sentence. The Chi-square test of independence (Burns & Grove, 1987), Pearson product moment correlations, t-test for independent samples, and tests for equality of proportions (Fleiss, 1981) were employed. The descriptions and explanations of these procedures were previously discussed.

Analysis Of Results

Differences Between Inmates Serving Life/Indefinite Sentences And Those Serving Definite Sentences On Well-Being Perception Variables

The PGWB Index did not correlate significantly with the new sentence variable (see Table 4.30). Results from the Chi-square test indicate that significant differences were not obtained between those inmates in the sample serving a life or indefinite sentence compared to those serving a definite sentence on the PGWB categories of Severe Distress, Moderate Distress, and Positive Well-Being (chi-square = 1.03674, DF = 2, p = .5955, n = 85). Therefore, the distribution of those inmates among these categories was similar between the two groups. The only PGWB scale that correlated significantly with the new sentence variable was Vitality, and the correlation was weak and negative (see Table 4.30). Results from the t-test (see Table 4.31) indicate that those inmates in the sample serving a life or indefinite sentence tended to have a significantly lower mean for Vitality (m = 9.9412) compared to those (m =

Table 4.30

Correlations Of PGWB Variables With The Two Types Of Sentence Groups

PGWB Variables	Type of Sentence (1 = Definite 2 = Life/Indefinite)
Anxiety	.1904 $p = .081$ $r^2 = .036$
Depressed Mood	-.0223 $p = .840$ $r^2 = .000$
Positive Well-Being	-.0242 $p = .826$ $r^2 = .001$
Self-Control	.0500 $p = .650$ $r^2 = .003$
General Health	-.0059 $p = .957$ $r^2 = .000$
Vitality	-.2506 $p = .021$* $r^2 = .063$
PGWB Index	-.0035 $p = .975$ $r^2 = .000$

Note. n = 85, 2-tailed *$p \leq .05$, the higher the score for Anxiety and Depressed Mood, the less the perception of Anxiety and Depressed Mood, and the lower the scores, the more the perception of Anxiety and Depressed Mood.

Table 4.31

Means And Standard Deviations (SD) Of PGWB Variables For Sentence Variable

Variable	Sentence	Mean	SD
Anxiety	Definite (n=51)	12.5882	5.393
	Life/Indefinite (n=34)	14.7647	5.810
Depressed Mood	Definite (n=51)	9.9412	3.373
	Life/Indefinite (n=34)	9.7647	4.645
Positive Well-Being	Definite (n=51)	9.7647	3.680
	Life/Indefinite (n=34)	9.5588	4.931
Self-Control	Definite (n=51)	10.6471	3.261
	Life/Indefinite (n=34)	10.9706	3.119
General Health	Definite (n=51)	8.9804	3.253
	Life/Indefinite (n=34)	8.9412	3.302
Vitality*	Definite (n=51)	12.1569	3.349
	Life/Indefinite (n=34)	9.9412	5.320

Note. n = sample size, 2-tailed $*p \leq .05$, the higher the means for Anxiety and Depressed Mood, the less the Anxiety and Depressed Mood, and the lower the Means, the more the Anxiety and Depressed Mood.

12.1569) serving a definite sentence (2-tailed F,p = .003, critical t = 2.36, DF = 83, 2-tailed t-p = .021). Therefore, 6.3% of the variance in Vitality is predictable from knowing whether the inmates were sentenced to life or indefinite sentences or whether they were sentenced to a definite sentence. Those inmates in the sample who were serving a life or indefinite sentence tended to perceive significantly less vitality compared to those inmates serving a definite sentence.

Differences Between Inmates Serving Life/Indefinite Sentences And Those Serving Definite Sentences On Time Perception Variables

The only significant correlation obtained for the new sentence variable with the time perception variables was Meaning, and the relationship was weak and negative (r = -.2498, p = .021, see Table 4.32). Those inmates in the sample who were serving a life or indefinite sentence tended to perceive a significantly less positive meaning of time compared to those inmates serving a definite sentence. Therefore, 6.2% of the variance in Meaning is predictable from knowing whether the inmates were serving a life or indefinite sentence or whether they were serving a definite sentence. Also results from the t-test (see Table 4.33) indicate that those inmates in the sample serving a life or indefinite sentence tended to have a significantly lower mean for Meaning (m = 4.1147) compared to those (m = 4.6471)

Table 4.32

Correlations Of Time Perception Variables With Two Types Of Sentence Groups

Time Perception Variables	Sentence (1 = Definite 2 = Life/Indefinite)
Meaning	-.2498 $p = .021$* $r^2 = .062$
Fast Tempo	.0267 $p = .809$ $r^2 = .001$
Slow Tempo	.0850 $p = .439$ $r^2 = .007$
Attention To Death	-.0607 $p = .581$ $r^2 = .004$
Future Orientation	-.1844 $p = .091$ $r^2 = .034$
Past Orientation	-.1702 $p = .119$ $r^2 = .029$
Consciousness Index	-.1498 $p = .171$ $r^2 = .022$

Note. $n = 85$, 2-tailed $*p \leq .05$.

Table 4.33

Means And Standard Deviations (SD) Of Time Perception Variables For Sentence Variable

Time Perception Variable	Sentence	Mean	SD
Consciousness Index	Definite (n=51)	1.4737	.667
	Life/Indefinite (n=34)	1.2768	.609
Meaning*	Definite (n=51)	4.6471	.915
	Life/Indefinite (n=34)	4.1147	1.168
Fast Tempo	Definite (n=51)	3.8196	.666
	Life/Indefinite (n=34)	3.8588	.816
Slow Tempo	Definite (n=51)	3.9137	.718
	Life/Indefinite (n=34)	4.0500	.892
Attention To Death	Definite (n=51)	3.0392	1.152
	Life/Indefinite (n=34)	2.9029	1.047
Future Orientation	Definite (n=51)	4.5745	.715
	Life/Indefinite (n=34)	4.2765	.885
Past Orientation	Definite (n=51)	4.3039	.857
	Life/Indefinite (n=34)	3.9824	1.015

Note. n = sample size, 2-tailed *$p \le .05$.

serving a definite sentence (2-tailed F,p = .116, critical t = 2.35, DF = 83, 2-tailed t-p = .021).

Differences Between Inmates Serving Life/Indefinite Sentences And Those Serving Definite Sentences On Biographical Variables

In keeping with the purpose of the analysis, and because of the large number of biographical variables analysed, mainly those that were determined to be significantly different between the groups will be discussed. However, all the results of the correlational analysis, Chi-square tests, and t-tests are reported in Tables 4.34, 4.35, and 4.36 respectively. Of the 19 correlations conducted, 9 correlations were statistically significant. Of the 12 Chi-square tests employed, 4 were statistically significant.

There was a significant weak positive correlation of the new sentence variable with age, indicating that those inmates in the sample serving a life or indefinite sentence tended to be significantly older compared to those inmates serving a definite sentence. This is expected (see Table 4.34). Results from the t-test (see Table 4.36) indicate that the mean age of those serving a life or indefinite sentence (m = 38.0882) was significantly higher compared to the mean age of those serving a definite sentence (m = 32.0392) (2-tailed F,p = .696, critical t = -3.09, DF = 83, 2-tailed t-p = .003).

Table 4.34

Correlations Of Biographical Variables With New Sentence Variable

Variable	n	Sentence (1 = Definite, 2 = Life/Indefinite)
Age	85	.3213 p = .003*
Highest Grade Completed	85	-.0750 p = .495
Number of Jobs	85	-.2909 p = .007*
Work (1 = Working, 2 = not Working)	85	-.1197 p = .275
School (1 = taking educational courses) (2 = not taking courses)	85	-.1550 p = .157
Work/School (1 = working/taking courses) (2 = not working/taking courses)	85	.0120 p = .913
Years Housed	85	.3898 p = .000*
Years Since Admission	85	.5604 p = .000*
Years In Correctional Facilities	85	.2661 p = .014*
Years Since Not A Prisoner	85	-.6452 p = .000*

Table 4.34 Continued

Table 4.34 Continued

Variable	n	Sentence (1 = Definite, 2 = Life/Indefinite)
Years Since Last Parole Eligibility	49	.4673 p = .001*
Years Until Next Parole Eligibility	75	.6397 p = .000*
Years Until Hearing, Appeal etc.	11	.2965 p = .376
Years Until Soonest Date	84	.5586 p = .000*
Literacy (0 = literate, 1 = illiterate)	85	.0454 p = .680
Condition Other Than Normal (0 = Not CON, 1 = CON)	85	-.0260 p = .813
Smoking During Interview (0 = Not Smoking, 1 = Smoking)	85	-.1206 p = .271
Drinking Coffee/Tea During Interview (0 = Not Drinking, 1 = Drinking)	85	.0922 p = .401
Unescorted Temporary Absence (0 = No Privileges, 1 = Privileges)	85	.0317 p = .773

Note. 2 -tailed $*p \leq .05$, n = sample size.

Table 4.35

Crosstabulation Of Biographical Variables By New Sentence Variable

Variable	Chi-square	DF	p
Marital Status	19.40294	5	.0016*
Highest Educational Credential	1.07656	3	.7827
Shortest Time Employed Outside Prison	15.26788	8	.0541
Longest Time Employed Outside Prison	12.85967	9	.1691
Four Housing Areas	3.42803	3	.3302
Two Housing Areas	.06811	1	.7941
Last Parole Eligibility Date	13.19728	2	.0014*
Whether Parole Granted Last Date	13.05817	3	.0045*
Next Parole Eligibility Date	2.82639	2	.2434
Chances Next Parole Eligibility Date	8.45810	4	.0762
Whether hearing, Appeal, etc.	11.31680	1	.0008*
Chances At Soonest Date	.41524	2	.8125

Note. n = 85, $*p \leq .05$, DF = Degrees of freedom, Four housing areas = disassociation & segregation, population, health care, induction; Two housing areas = disassociation & segregation and elsewhere in the prison.

Table 4.36

Means And Standard Deviations (SD) Of Biographical Variables For New Sentence Variable

Biographical Variable	Housing Area	Mean	SD
Age*	Definite (n=51)	32.0392	8.628
	Life/Indefinite (n=34)	38.0882	9.150
Highest Grade Completed	Definite (n=51)	10.2745	2.050
	Life/Indefinite (n=34)	9.9118	2.832
Number of Jobs Outside Prison*	Definite (n=51)	6.8431	10.287
	Life/Indefinite (n=34)	1.8824	2.056
Years Housed*	Definite (n=51)	.7065	.811
	Life/Indefinite (n=34)	1.9812	2.147
Years Since Admission*	Definite (n=51)	1.8655	1.887
	Life/Indefinite (n=34)	5.1556	3.037
Years In Correctional Facilities*	Definite (n=51)	9.2625	5.647
	Life/Indefinite (n=34)	12.8029	7.307
Years Since Not A Prisoner*	Definite (n=51)	2.5945	1.898
	Life/Indefinite (n=34)	8.3626	4.836
Years Since Last Parole Eligibility*	Definite (n=37)	.9462	.979
	Life/Indefinite (n=12)	3.9650	4.871
Years Until Next Parole Eligibility*	Definite (n=43)	.5853	.666
	Life/Indefinite (n=32)	7.9481	6.762
Years Until Soonest Date	Definite (n=51)	.5573	.631
	Life/Indefinite (n=33)	5.0509	5.220

Note. 2-tailed *$p \leq .05$, n = sample size.

Results from the Chi-square test indicate that there were significant differences between the groups on marital status (see Table 4.35). Results from the equality of proportions test indicate that the proportion of inmates in the sample serving a life or indefinite sentence, who were married (n = 11, 32.4%) was significantly higher than the proportion of inmates serving a definite sentence (n = 5, 9.8%) who were married (p = .020). There were no inmates in the sample serving a life or indefinite sentence who were separated, and six inmates serving a definite sentence who were separated. The proportion of inmates serving a life or indefinite sentence who were divorced (n = 8, 23.5%) was significantly higher than the proportion of inmates serving a definite sentence (n = 3, 5.9%) who were divorced (p = .041). The proportion of inmates serving a life or indefinite sentence who were widowed (n = 3, 8.8%) was equivalent to the proportion of inmates serving a definite sentence (n = 2, 3.9%) who were widowed (p = .638). The proportion of inmates serving a life or indefinite sentence who were single (n = 10, 29.4%) was significantly lower than the proportion of inmates serving a definite sentence (n = 28, 54.9%) who were single (p = .036). The proportion of inmates serving a life or indefinite sentence who were in a common law relationship (n = 2, 5.9%) was significantly lower than the proportion of inmates serving a definite sentence (n = 7, 13.7%) who were in a common law relationship. Because the inmates in the sample serving a life or indefinite sentence tended to be older, it is expected that more of them would be married and divorced.

There was a significant weak negative correlation of the new sentence variable with the number of jobs (see table 4.34), indicating that those inmates serving a life or indefinite sentence tended to have held significantly fewer jobs outside of prison in the past 10 years compared to those serving a definite sentence. This is expected. Results from the t-test (see Table 4.36) indicate that those inmates serving a life or indefinite sentence tended to have a significantly lower mean number of jobs (m = 1.8824) in the past 10 years outside of prison compared to those (m = 6.8431) serving a definite sentence (2-tailed F,p = .000, critical t = 2.77, DF = 83, 2-tailed t-p = .007).

Significant differences between the groups were not obtained by Chi-square analysis as to where they were housed (see Table 4.35). However, there was a significant weak positive correlation for the new sentence variable with the number of consecutive years that they had been housed in the area (see Table 4.34). Those inmates serving a life or indefinite sentence tended to have been housed for significantly more consecutive years in the areas. Results of the t-test indicate that those inmates serving a life or indefinite sentence tended to have a significantly higher mean number of consecutive years that they had been housed in the areas (m = 1.9812) compared to those (m = .7065) serving a definite sentence (2-tailed F,p = .000, critical t = -3.86, DF = 83, 2-tailed t-p = .000), which is expected.

There was a significant moderate positive correlation for the new sentence variable with the number of years since admission, indicating that those inmates serving a life or indefinite sentence tended to have spent significantly more years in this prison (See Table 4.34). Results from the t-test (see Table 4.36) indicate that those inmates serving a life or indefinite sentence tended to have a significantly higher mean number of years since admission (m = 5.1556) compared to those (m = 1.8655) serving a definite sentence (2-tailed F,p =.002, critical t = -6.16, DF = 83, 2-tailed t-p = .000), which is expected.

There was a significant weak positive correlation for the new sentence variable with the number of years spent in correctional facilities in their life time (see Table 4.36), and results form the t-test were also significant (see Table 4.36). Those inmates in the sample serving a life or indefinite sentence tended to have spent significantly more years in their life time in correctional facilities and tended to have a significantly higher mean number of years spent in correctional facilities in their life time (m = 12.8029) compared to those serving a definite sentence (m = 9.2625) (2-tailed F,p = .098, critical t = -2.51, DF = 83, 2-tailed t-p = .014). This finding was expected.

There was a significant moderate positive correlation for the new sentence variable with the number of years since they were not prisoners (see Table 4.34), and results from the t-test were significant (see Table 4.36). Those inmates serving a life or indefinite sentence tended to have spent a significantly longer period of time since they were not prisoners, and tended to have a significantly higher mean number of years since they were not prisoners (m = 8.3626) compared to those (m = 2.5945) serving a definite sentence (2-tailed F,p = .000, critical t = -7.69, DF = 83, 2-tailed t-p = .000). This finding was expected.

Results from the Chi-square test indicate that there was a significant difference between the groups as to whether or not they had a last parole eligibility date (PED) (see Table 4.35). There were no inmates serving a life or indefinite sentence who did not know their last PED, and only one inmate serving a definite sentence who did not know his last PED. Results from the equality of proportions test indicate that there was a significantly lower proportion of inmates serving a life or indefinite sentence who had a last PED (n = 12, 35.3%) compared to the proportion of inmates serving a definite sentence (n = 37, 72.5%) who had a last PED (p = .001). This was expected. There was a significant moderate positive correlation for the new sentence variable with the number of years since their last PED (see Table 4.36). Those inmates serving a life or indefinite sentence who had a last PED tended to have had significantly more years since their last PED compared to those serving a definite sentence who had a last PED. The t-test results (see Table 4.36) indicate that those inmates serving life or indefinite sentences who had a last PED tended to have a significantly higher mean number of years since their last PED (m = 3.9650) compared to those (m = .9462) serving a definite sentence who had a last PED (2-tailed F,p = .000, critical t = -3.62, DF = 47, 2-tailed t-p = .001). The Chi-square test results determined that there was a significant difference between the groups as to whether or not those inmates who had a last PED were granted parole on their last PED (see Table 4.35). The equality of proportions test indicates that the proportion of inmates serving a life or indefinite sentence who waived their last PED (n = 1, 2.9%) was significantly lower than the proportion of inmates serving a definite sentence (n = 9, 17.6%) who waived their last PED. The proportions of inmates serving a life or indefinite sentence who were granted parole (n = 3, 8.8%), and who were not granted parole(n = 8, 23.5%) were equivalent to the proportions of inmates serving a definite sentence who were granted parole (n = 5, 9.8%) and not granted parole (n = 23, 45.1%) on their last PED (p = .820, p = .073) respectively.

The Chi-Square test results indicate that there was not a significant difference between the groups as to whether or not they have a next PED (see Table 4.35), but there was a significant moderate positive correlation of the new sentence variable with the number of years until the next PED (see Table 4.34), and also significant t-test results were obtained (see Table 4.36). Those inmates serving a life or indefinite sentence who do have a next PED tended to have significantly more years until their next PED, and tended to have a significantly higher mean number of years until their next PED (m = 7.9481) compared to those (m = .5853) serving a definite sentence who do have a next PED (2-tailed F,p = .000, critical t = -7.11, DF = 73, 2-tailed t-p = .000). This finding was expected.

The Chi-square test results indicate that there were significant differences between the groups as to whether or not they have a hearing, appeal, judicial review, or retrial etc. (see Table 4.35). The equality of proportions test indicates that the proportion of inmates in the sample serving a life or indefinite sentence who have such dates (n = 10, 29.4%) was significantly higher than the proportion of inmates serving a definite sentence (n = 1, 2.0%) who have such dates (p = .001). This finding was expected. A significant correlation was not obtained for the new sentence variable with the number of years until these dates (see Table 4.34). Because there was only one inmate serving a definite sentence who had such a date, and he did not know his chances at his next hearing, appeal, judicial review, or retrial etc, the variable "chances at hearing appeal, etc." could not be interpreted.

There was a significant moderate positive correlation for the new sentence variable with the number of years until the soonest date (i.e., PED, MS, hearings, appeals, judicial reviews, retrials etc.), and also significant results were obtained from the t-test (see Table 4.36). Those inmates in the sample serving a life or indefinite sentence tended to have significantly more years until the date arrives (see Table 4.34), and tended to have a significantly higher mean number of years until the soonest date (m = 5.0509) compared to those (m = .5573) serving a definite sentence (2-tailed F,p = .000, critical t = -6.10, DF = 82, 2-tailed t-p = .000).

Discussion Of Results

Those inmates in the sample serving a life or indefinite sentence tended to perceive significantly less vitality and a more negative (less positive) meaning of time compared to those inmates serving a definite sentence. Because those inmates serving a life or indefinite sentence tended to be significantly older than those serving a definite sentence, this may have influenced their perception of less vitality. It is expected that more inmates serving a life or indefinite sentence would be married and divorced compared to those serving a definite sentence because they tended to be older. All of the other significant biographical variables differentiating the two groups were expected because these variables are a result of the type of sentence served. Because those serving a life or indefinite sentence tended to have been imprisoned and will be imprisoned for a longer period of time compared to those serving a definite sentence, this may have tended to promote their perception of less vitality and may have tended to promote their perception of a more negative meaning of time. It appears that the type of sentence served did not tend to significantly influence the other time perception and well-being perception variables.

Regression Analysis Of Results

Introduction

The results of the preceding analysis indicate that those inmates in the sample serving a life or indefinite sentence did tend to differ significantly from those serving a definite sentence on the well-being perception variable of Vitality, on the time perception variable of Meaning, and on 13 other biographical variables. The purpose of the regression analysis was to determine the effects of the type of sentence the inmates were serving, while considering the effects of some of the other biographical variables, on the seven well-being perception and the seven time perception variables. With this aim, the new sentence variable was entered last into the regression equations, while forwarding some of the other biographical variables first into the equations. This would determine how much variance the new sentence variable accounted for in the well-being perception variables and in the time perception variables, while taking into account the effects of some of the other biographical variables. The slopes (i.e., B) were used to determine the effects of the biographical variables on the dependent variables of time and well-being perception. The R^2 adjusted values were interpreted, rather than the R^2 values, although both values are reported in Table 4.37.

Therefore, 14 separate regression equations were conducted when the seven well-being perception variables, and the seven time perception variables were considered the dependent variable. The following six biographical variables were eliminated from the equations: (1) marital status, (2) whether or not they had a last parole eligibility date (PED), and (3) whether or not they were granted parole on their last PED, because these preceding variables were not at the interval level, (4) whether or not they had a hearing, appeal, judicial review, retrial, etc., because there was only one subject serving a definite sentence who had such a date, (5) the number of years since their last PED ($n = 49$), and (6) the number of years until their next PED ($n = 75$) because these last two preceding variables applied to only some of the inmates, and their inclusion would have drastically reduced the sample size that would have been included in the regression analysis.

Table 4.37

Explained And Unique Variance Of Biographical Variable On The Dependent Variables

Dependent	Independent	F,p	R^2	Adjusted R^2	R^2 Change
General Health	Age	.0052*	.09150	.08042	
	Sentence	.0137*	.10048	.07827	NS
Vitality	Age	.0144*	.07082	.05949	
	Sentence	.0175*	.09505	.07271	NS
Meaning	Years Since Not Prisoners	.0481*	.04681	.03518	
	Sentence	.0664	.06476	.04167	NS
Past Orientation	Years Since Admission	.0049*	.09239	.08132	
	Sentence	.0197*	.09239	.06998	NS

Note. *F,$p \leq .05$, NS = not significant, n = 85, Sentence (1 = Definite, 2 = Life/Indefinite), Adjusted R^2 = Preceding Adjusted R^2 - Adjusted R^2 (unique variance).

Therefore, the seven other biographical variables that were entered as independent variables were the following: (1) age, (2) number of jobs held outside of prison in the past 10 years, (3) the number of consecutive years they were housed in their area, (4) the number of years since admission to this prison, (5) the total number of years in their life time that they have spent in correctional facilities, (6) the number of years since they were not prisoners, and (7) the number of years left until their soonest date (i.e., PED, MS, hearings, appeals, etc.), and the new sentence variable was forced to enter last.

Analysis Of Results

When interpreting the results, it is recognized that any other causally effective variables that the significant independent variable may be related to but were not included in the analysis will have an affect on the dependent variable. When General Health was entered as the dependent variable, age entered first into the regression equation because it had the smallest probability of F-value. Age accounted for 8.0% of the significant variance in General Health (see Table 4.37). The new sentence variable did not account for any additional significant variance in General Health, and the other biographical variables did not account for any significant variance in General Health. The negative slope of General Health and age indicates that as age increases by one unit, the raw scores for General Health tended to significantly decrease by .10621 units (i.e., perceive a lower level of general health), and as age decreases by one unit, the raw scores for General Health tended to significantly increase by .10621 units (i.e., perceive a higher level of general health) (see Table 4.38).

When Vitality was entered as the dependent variable, age entered first into the regression equation because it had the smallest probability of F-value. Age accounted for 5.9% of the significant variance in Vitality (see Table 4.37). The new sentence variable did not account for any additional significant variance in Vitality. The other biographical variables did not account for any significant variance in Vitality. The negative slope of Vitality and age indicates that as age increases one unit, the raw scores for Vitality tended to decrease by .12304 units (i.e., perceive less vitality), and as age decreases one unit, the raw scores for Vitality tended to increase by .12304 units (i.e., perceive more vitality) (see Table 4.38).

When Meaning was entered as the dependent variable, the number of years since the inmates were not prisoners entered first into the regression equation because it had the smallest probability of F-value. It accounted for 3.5% of the variance in Meaning (see Table 4.37). The new sentence variable did not account for any additional significant variance, and the other biographical variables did not account for any significant variance in Meaning. The

Table 4.38

Slopes (B) Of Dependent Variables And Biographical Variables

Dependent Variable	Independent Variable	ß	t	t-p
General Health	Age	-.10621	-2.874	.0052*
	Number Of Jobs			NS
	Years Housed			NS
	Years Since Admission			NS
	Years In Correctional Facilities			NS
	Years Since Not Prisoners			NS
	Years Until Soonest Date[a]			NS
	Sentence		.899	.3712
Vitality	Age	-.12304	-2.500	.0144*
	Number Of Jobs			NS
	Years Housed			NS
	Years Since Admission			NS
	Years In Correctional Facilities			NS
	Years Since Not Prisoners			NS
	Years Until Soonest Date[a]			NS
	Sentence		-1.473	.1147
Meaning	Age			NS
	Number Of Jobs			NS
	Years Housed			NS
	Years Since Admission			NS
	Years In Correctional Facilities			NS
	Years Since Not Prisoners	-.05159	-2.007	.0481*
	Years Until Soonest Date[a]			NS
	Sentence		-1.247	.2160

Table 4.38 Continued

Dependent Variable	Independent Variable	ß	t	t-p
Past Orientation	Age			NS
	Number Of Jobs			NS
	Years Housed			NS
	Years Since Admission	-.09798	-2.889	.0049*
	Years In Correctional Facilities			NS
	Years Since Not Prisoners			NS
	Years Until Soonest Date[a]			NS
	Sentence		.008	.9935

Note. *t-$p \leq .05$, NS = not significant, n = 85, [a]n = 84, Sentence (1 = Definite, 2 = Life/Indefinite), Number Of Jobs = number of jobs outside of prison in the past 10 years.

negative slope indicates that as the number of years since they were not prisoners increases by one unit, the raw scores for Meaning tended to decrease by .05159 units (i.e., perceive less positive meaning of time), and as the number of years since they were not prisoners decreases by one unit, the raw scores for Meaning tended to increase by .05159 units (i.e., perceive more positive meaning of time) (see Table 4.38).

When Past Orientation was entered as the dependent variable, the number of years since they were admitted to this prison, entered first into the regression equation because it had the small probability of F-value. It accounted for 8.1% of the significant variance in Past Orientation. The new sentence variable did not account for any additional significant variance in Past Orientation, and the other biographical variables did not account for any significant variance in Past Orientation.

The negative slope of Past Orientation and the number of years since admission indicates that as the number of years since admission increases one unit, the raw scores for Past Orientation tended to significantly decrease by .09798 units (i.e., focus less thoughts and activity to the past), and as the number of years since admission decreases one unit, the raw scores for Past Orientation tended to significantly increase by .09798 units (i.e., focus more thoughts and activities to the past) (see Table 4.38).

When the well-being perception variables of Anxiety, Depressed Mood, Positive Well-Being, Self-Control, and the PGWB Index, and the time perception variables of Fast Tempo, Slow Tempo, Attention to Death, Future Orientation, and the Consciousness Index were each entered as the dependent variable, none of the biographical variables analysed, including the new sentence variable, explained any significant variance in them.

Discussion Of Results

Age was more important in influencing their perception of General Health (Beta = -.30249) than it was in influencing their perception of Vitality (Beta = -.26612), although its effects on both variables were small. Those inmates in the sample who were older tended to perceive a significantly lower level of general health and significantly less vitality, while those inmates who were younger, tended to perceive a significantly higher level of general health and significantly more vitality, regardless of the type of sentence they were serving. Those inmates who had spent more years in this prison since admission tended to focus their thoughts and activities significantly less on the past, and those inmates who had spent less years in this prison since admission tended to focus their thoughts and activities significantly more on the past. Those inmates in the sample who spent more years since they were last not prisoners tended to perceive a significantly less positive meaning of time, and those inmates who spent less years since they were last not prisoners tended to perceive a significantly more positive meaning of time.

Whether the inmates in the sample were serving life and indefinite sentences or definite sentences did not tend to significantly affect the variances of any of the well-being and time perception variables. It appears that age tended to have a significant effect, while the type of sentence they were serving appeared not to have a significant effect in their perception of well-being. Younger people may tend to have less problems with their general health, and may be more inclined to feeling more vitality than older people. Although those inmates serving life and indefinite sentences tended to be serving longer sentences compared to those serving definite sentences, the awareness of the type of sentence they were serving did not appear to have a significant effect on their perception of time, while the length of time since they have been admitted did have a significant effect. If the environment and events they left were more recent, they would have naturally tended to have more thoughts and activities directed to this, compared to if they had been in this prison for a long time. It appears that the period of time since they were last free (i.e., not prisoners) was important to their perception of the meaning of time, while their attention to the type of sentence that they are serving was not. Perhaps the meaning of time in relation to being free and not free was of significance.

Summary Of Results

To summarize, the significant effects of the biographical variables on the well-being perception and time perception variables are reported in Table 4.39. The non-significant effects of the biographical variables on the other well-being perception and time perception variables are not reported. Whether the inmates were serving life and indefinite sentences or definite sentences did not significantly affect any of the well-being and time perception variables. The only biographical variable that had any significant effect on well-being perception was age. The only biographical variables that had any significant effect on time perception were the number of years since they were admitted to this prison, and the number of years since they were not prisoners.

Summary Regression Analysis Of Overall Sample

Introduction

The purposes of this final regression analysis were to investigate the following:

(1) To identify which biographical variables have significant effects on the PGWB Index while controlling for each of the seven time perception variables separately.

(2) To identify which of the seven time perception variables have significant effects on the PGWB Index while controlling for the biographical variables.

Table 4.39

Effects Of New Sentence Variable And Other Biographical Variables On Well-being And Time Perception Variables

Independent Variables	Dependent Variables			
	Vitality	General Health	Meaning	Past Orientation
Age	*	*		
Number Of Jobs				
Years Housed				
Years Since Admission				*
Years In Correctional Facilities				
Years Since Not Prisoners			*	
Years Until Soonest Date				
Sentence				

Note. The variables marked with an asterisk indicate that the biographical variable had a significant effect ($p \leq .05$) on the dependent variable, Number Of Jobs = number of jobs held outside of prison in past 10 years, sentence (1 = Definite, 2 = Life/Indefinite).

(3) To identify which biographical variables have significant effects on the PGWB Index while controlling for the seven time perception variables altogether.

(4) To identify which time perception variables, when considered altogether, having significant effects on the PGWB Index, while controlling for the biographical variables.

(5) To identify which biographical variables have significant effects on each of the seven time perception variables while controlling for the PGWB Index.

(6) To determine if the PGWB Index has a significant effect on any of the time perception variables while controlling for the biographical variables.

The PGWB Index was chosen as the variable to represent well-being perception because it is the measure of the inmates' general well-being perception.

Selection Of Biographical Variables

Because of the large number of biographical variables significantly related to the well-being and time perception variables, and because the sample size of the study was 85, it was important to limit the number of predictor variables (independent variables) in the regression analysis in order to increase the accuracy of the predictions. The biographical variables that were included in the regression analysis were significantly related to some of the well-being perception and/or time perception variables, were at the interval level, were relevant to all subjects in the sample, and some of them were inclusive of or related to other biographical variables not chosen. Therefore, the five biographical variables that were chosen included the following: age, highest grade completed, whether they were housed in disassociation and segregation (D&S) or elsewhere in the prison, the number of years since they were not prisoners (i.e., free), and the number of years since they have been admitted to this prison.

Orthogonal Transformation Of TES Variables

Previous analysis indicated that some of the time perception variables derived from the TES were significantly related to each other, therefore it was decided to orthogonally transform these six time perception variables. The purpose of orthogonal transformation of the six TES variables (i.e., Meaning, Fast Tempo, Slow Tempo, Attention to Death, Future Orientation, Past Orientation) was to facilitate the univocal interpretation of each of their relationships to the biographical variables and to the PGWB Index in the regression analysis. In the orthogonalization, all the TES variables were simultaneously transformed so that they were uncorrelated but maximally related to the original set of scores using the criterion of least squares. The result is that each transformed variable has a mean equal to zero and a standard deviation equal to one. This provides TES variables that are pure in that none of the orthogonalized TES variables share any variance with each other, and each orthogonalized TES variable is maximally correlated with the associated untransformed variable. Therefore, the statistical and conceptual independence of the TES variables created by the orthogonalization procedure avoids interpretive difficulties inherent with correlated scales (Cawsey, Reed, & Reddon, 1982; Jackson & Reddon, 1987, Mulaik, 1972, Reddon, 1989).

Results of orthogonal transformation of TES. As a result of orthogonal transformation of the TES variables, the intercorrelation between each variable was zero (see Table 4.40). The transformed TES variables all correlated very highly with the original TES variables (see Table 4.41).

Regression Analysis Of Biographical Variables And PGWB Index While Controlling For Each Time Perception Variable Separately

Introduction

The purpose of this regression analysis was to identify which biographical variables have significant effects on the PGWB Index while controlling for each of the seven time perception variables separately. The PGWB Index was entered as the dependent variable. Each transformed time perception variable, and the Consciousness Index was separately entered first into each of the regressions, followed by forward entry of the other five biographical variables, resulting in

Table 4.40

Intercorrelations Between Transformed TES Variables

	ZMeaning	ZFast	ZSlow	ZDeath	ZFuture	ZPast
ZMeaning		-.0000 (1.000)	-.0000 (1.000)	-.0000 (1.000)	.0000 (1.000)	.0000 (1.000)
ZFast	-.0000 (1.000)		.0000 (1.000)	-.0000 (1.000)	.0000 (1.000)	.0000 (1.000)
ZSlow	-.0000 (1.000)	.0000 (1.000)		.0000 (1.000)	-.0000 (1.000)	.0000 (1.000)
ZDeath	-.0000 (1.000)	-.0000 (1.000)	.0000 (1.000)		.0000 (1.000)	.0000 (1.000)
ZFuture	.0000 (1.000)	.0000 (1.000)	-.0000 (1.000)	.0000 (1.000)		.0000 (1.000)
ZPast	.0000 (1.000)	.0000 (1.000)	.0000 (1.000)	.0000 (1.000)	.0000 (1.000)	

Note. n = 85, Z indicates that the variable was orthogonally transformed, the 2-tailed probability is located below the correlation value in parenthesis, Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention to Death, Future = Future Orientation, Past = Past Orientation.

Table 4.41

Correlations Of Original TES Variables With Transformed TES Variables

Original	Transformed	Correlation	P
Meaning	ZMeaning	.9217	.000
Fast Tempo	ZFast Tempo	.9766	.000
Slow Tempo	ZSlow Tempo	.9605	.000
Attention to Death	ZAttention to Death	.9573	.000
Future Orientation	ZFuture Orientation	.9668	.000
Past Orientation	ZPast Orientation	.9849	.000

Note. n = 85, Z indicates that the variable was orthogonally transformed, p = 2-tailed probability.

seven separate regressions. Entering each time perception variable first was done to take its influence into account when determining the effects of the five biographical variables on the PGWB Index. The R^2 adjusted values were interpreted, rather than the R^2 values although the R^2 values were also stated for the significant variables.

Results Of The Regression Analysis

When interpreting the results, it is recognized that any other causally effective variables that the significant independent variable may be related to but were not included in the analyses will have an effect on the dependent variable. When Meaning was controlled, none of the five biographical variables had any significant effect on the PGWB Index (see Table 4.42 & 4.43). When Fast Tempo was controlled, the only biographical variable that had a significant effect on the PGWB Index was housing. Whether the inmates were housed in D&S or elsewhere in the prison accounted for 6.9% additional variance in the PGWB Index (see Table 4.42). The R^2 value was .09093. The positive unstandardized slope of the PGWB Index and housing (B = 13.56331) indicates that as the housing variable increases one unit (i.e., changes from D&S to elsewhere), the raw scores for the PGWB Index tended to significantly increase by 13.56331 units (i.e., perceive higher level of general well-being), and as the housing variable decreases by one unit (i.e., changes from elsewhere to D&S), the raw scores

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Table 4.42

Variance Of Independent Variables On PGWB Index When Time Variables Separately Entered First

x = age, grade, housing, years since not prisoners, years since admission all entered.

Dependent	Independent	F,p	Adjusted R^2	Adjusted R^2 Change
PGWB Index	ZMeaning	.0000*	.32989	
	x	NS		
PGWB Index	ZFast Tempo	.6954	.00000	
	Housing	.0201*	.06876	.06876
PGWB Index	ZSlow Tempo	.2822	.00204	
	Housing	.0137*	.07738	.07534
PGWB Index	ZAttention To Death	.0506	.03376	
	Housing	.0041*	.10422	.07046
PGWB Index	ZFuture Orientation	.2037	.00758	
	Housing	.0130*	.07850	.07092
PGWB Index	ZPast Orientation	.0048*	.08091	
	Housing	.0005*	.14803	.06712
PGWB Index	Consciousness Index	.6692	.00000	
	Housing	.0162*	.07357	.07357

Note. n = 85, *F,$p \leq .05$, NS = not significant, Z indicates that the variable was orthogonally transformed Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed, Adjusted R^2 Change = Preceding Adjusted R^2 - Adjusted R^2 (unique variance).

Table 4.43

Standardized Slopes (Beta) Of PGWB Index And Independent Variables When Time Variables Separately Entered First

x = age, grade, housing, years since not prisoners, years since admission entered.

Dependent	Independent	Beta	t	t-p
PGWB Index	ZMeaning	.58126	6.508	.0000*
	Age		.200	.8419
	Grade		.702	.4845
	Housing		1.722	.0888
	Years Since Not Prisoners		1.398	.1660
	Years Since Admission		1.099	.2748
PGWB Index	ZFast Tempo	.01732	.164	.8702
	Age		-1.195	.2356
	Grade		1.284	.2028
	Housing	.29956	2.834	.0058*
	Years Since Not Prisoners		.059	.9529
	Years Since Admission		.409	.6835
PGWB Index	ZSlow Tempo	-.09367	-.891	.3757
	Age		-1.258	.2120
	Grade		1.261	.2109
	Housing	.29329	2.789	.0066*
	Years Since Not Prisoners		.098	.9219
	Years Since Admission		.408	.6841

Table 4.43 Continued

Dependent	Independent	Beta	t	t-p
PGWB Index	ZAttention to Death	-.18760	-1.809	.0740
	Age		-1.186	.2390
	Grade		1.105	.2725
	Housing	.28446	2.744	.0075*
	Years Since Not Prisoners		.138	.8909
	Years Since Admission		.740	.4611
PGWB Index	ZFuture Orientation	.09998	.946	.3471
	Age		-1.092	.2782
	Grade		1.282	.2037
	Housing	.28739	2.718	.0080*
	Years Since Not Prisoners		.122	.9030
	Years Since Admission		.495	.6220
PGWB Index	ZPast Orientation	-.27972	-2.768	.0070*
	Age		-1.771	.0803
	Grade		1.000	.3205
	Housing	.27751	2.746	.0074*
	Years Since Not Prisoners		-.452	.6522
	Years Since Admission		-.493	.6233
PGWB Index	ZConsciousness Index	-.07089	-.673	.5029
	Age		-1.220	.2260
	Grade		1.312	.1932
	Housing	.30657	2.910	.0046*
	Years Since Not Prisoners		-.068	.9463
	Years Since Admission		.357	.7217

Note. n = 85, *t-p≤.05, Z indicates that the variable was orthogonally transformed, Housing (1 = D&S, 2 = Elsewhere), grade = highest grade completed.

for the PGWB Index tended to significantly decrease by 13.56331 units (i.e., perceive lower level of general well-being) (see Table 4.43 for standardized slope).

When Slow Tempo was controlled, the only biographical variable that had a significant effect on the PGWB Index was housing. Whether the inmates were housed in D&S or elsewhere in the prison accounted for additional 7.5% of the variance in the PGWB Index (see Table 4.42). The R^2 value was .09934. The positive unstandardized slope of the PGWB Index and housing (B = 13.27912) indicates that as the housing variable increases one unit (i.e., changes from D&S to elsewhere), the raw scores on the PGWB Index tended to significantly increase by 13.27912 units (i.e., perceive higher level of general well-being), and as the housing variable decreases one unit (i.e., changes from elsewhere to D&S), the raw scores on the PGWB Index tended to significantly decrease by 13.27912 units (i.e., perceive lower level of general well-being) (see Table 4.43 for standardized slope).

When Attention to Death was controlled, the only biographical variable that had a significant effect on the PGWB Index was housing. Whether the inmates were housed in D&S or elsewhere in the prison accounted for additional 7.0% of the variance in the PGWB Index (see Table 4.42). The R^2 value was .12555. The positive unstandardized slope of the PGWB Index and housing (B = 12.87961) indicates that as the housing variable increases one unit (i.e., changes from D&S to elsewhere), the raw scores on the PGWB Index tended to significantly increase by 12.87961 units (i.e., perceive a higher level of general well-being), and as the housing variable decreases one unit (i.e., changes from elsewhere to D&S), the raw scores on the PGWB Index tended to significantly decrease by 12.87961 units (i.e., perceive lower level of general well-being) (see Table 4.43 for standardized slope).

When Future Orientation was controlled, the only biographical variable that had a significant effect of the PGWB Index was housing. Whether the inmates were housed in D&S or elsewhere in the prison accounted for an additional 7.1% of the variance in the PGWB Index (see Table 4.42). The R^2 value was .10044. The positive unstandardized slope of the PGWB Index and the housing variable ($B = 13.01217$) indicates that as the housing variable increases one unit (i.e., changes from D&S to elsewhere), the raw scores on the PGWB Index tended to significantly increase by 13.01217 units (i.e., perceive higher level of general well-being), and as the housing variable decreases by one unit (i.e., changes from elsewhere to D&S), the raw scores on the PGWB Index tended to significantly decrease by 13.01217 units (i.e., perceive lower level of general well-being) (see Table 4.43 for standardized slope).

When Past Orientation was controlled, the only biographical variable that had a significant effect on the PGWB Index was housing. Whether the inmates were housed in D&S or elsewhere in the prison additionally accounted for 6.7% of the significant variance in the PGWB Index (see Table 4.42). The R^2 value was .16832. The positive standardized slope for the PGWB Index and housing indicate that as the variable for housing increase by one standardized unit (i.e., change from D&S to elsewhere), the standardized scores for the PGWB Index tended to significantly increase by .27751 standardized units (i.e., perceive a higher level of general well-being), and as the housing variable decreases by one standardized unit (i.e., changes from elsewhere to D&S), the standardize scores for the PGWB Index tended to significantly decrease by .27751 standardized units (i.e., perceive lower level of general well-being) (see Table 4.43). However, the housing variable had less of an effect on the PGWB Index compared to the effect of Past Orientation because the standardized slope of the housing variable was relatively less than the standardized slope of the housing variable.

When the Consciousness Index was controlled,the only biographical variable that had a significant effect on the PGWB Index was housing. Whether the inmates were housed in D&S or elsewhere in the prison accounted for an additional 7.4% of the variance in the PGWB Index (see Table 4.42). The R^2 value was .09562. The positive unstandardized slope of the PGWB Index and the housing variable (B = 13.88079) indicates that as the housing variable increases by one unit (i.e., changes from D&S to elsewhere), the raw scores on the PGWB Index tended to significantly increase by 13.88079 units, (i.e., perceive higher level of general well-being), and as the housing variable decreases by one unit (i.e., changes from elsewhere to D&S), the raw scores on the PGWB Index tended to significantly decrease by 13.88079 units (see Table 4.43 for standardized slope).

Discussion Of Results

Whether the inmates were housed in D&S or elsewhere in the prison was the only biographical variable analysed that had significant effects on the general level of well-being perception. In fact, this variable significantly affected the PGWB Index when six of the seven time perception variables were separately controlled. In every case the housing variable affected the PGWB Index raw scores by approximately 12 to 13 units. The PGWB Index has a range of 0 to 110 possible scores. Therefore, where the inmates were housed does appear to be important in the general well-being perception of inmates. Inmates in D&S tended to have a significantly lower perception of general well-being compared to those inmates housed elsewhere in the prison, regardless of their perceptions of Fast Tempo, Slow Tempo, Attention to Death, Future Orientation, and the estimation of time (i.e., the Consciousness Index). However, being housed in D&S or elsewhere in the prison did not significantly affect their perception of general well-being when their perception of the meaning of time was taken into account.

Comparison Of Transformed Analysis To Original Analysis

The comparison of the regression statistics, when using the transformed TES variables in the analysis with using the original TES variables in the analysis is reported in Table 4.44. The variables that were significant and not significant were the same using both procedures. However, the adjusted R^2 and Beta values of the TES and housing variables were all less when using the transformed TES variables, except when Fast Tempo was analysed. When Fast Tempo was analysed using the transformed TES variables, the adjusted R^2 and Beta values increased. Also, the Beta values for Fast Tempo became positive when using the transformed variable, whereas the untransformed Fast Tempo variable Beta value was negative. The original correlation between the PGWB Index and Fast Tempo was positive which means that the Beta value for the untransformed variable was misleading.

Regression Analysis Of PGWB Index And Each Time Perception Variable While Controlling For The Biographical Variables

Introduction

The purpose of this regression analysis was to identify which time perception variables have significant effects on

Table 4.44

Comparison Of Transformed Analysis With Original Analysis When Time Variables Separately Entered First

x = age, grade, housing, years since not prisoners, years since admission all entered.
Dependent Variable = PGWB Index

Independent Variable	F-p	Adjusted R^2	Beta	t-p
ZMeaning	.0000*	.32989	.58126	.0000*
x	NS			NS
Meaning	.0000*	.41467	.64934	.0000*
x	NS			NS
ZFast Tempo	.6954	.00000	.01732	.8702
Housing	.0201*	.06876	.29956	.0058*
Fast Tempo	.9187	.00000	-.01207	.9093
Housing	.0202*	.06860	.30198	.0054*
ZSlow Tempo	.2822	.00204	-.09367	.3757
Housing	.0137*	.07738	.29328	.0066*
Slow Tempo	.0956	.02146	-.15722	.1354
Housing	.0066*	.09359	.28752	.0072*
ZAttention To Death	.0560	.03376	-.18760	.0740
Housing	.0041*	.10422	.28446	.0075*
Attention To Death	.0022*	.09699	-.29495	.0045*
Housing	.0004*	.15615	.26384	.0107*

Table 4.44 Continued

Independent Variable	F-p	Adjusted R^2	Beta	t-p
ZFuture Orientation	.2037	.00758	.09998	.3471
Housing	.0130*	.07850	.28739	.0080*
Future Orientation	.0580	.02800	.15347	.1493
Housing	.0071*	.09192	.27575	.0106*
ZPast Orientation	.0048*	.08091	-.27972	.0070*
Housing	.0005*	.14803	.27751	.0074*
Past Orientation	.0003*	.13456	-.34959	.0007*
Housing	.0001*	.19185	.25922	.0104*

Note. n = 85, *F,$p \leq .05$, *t-$p \leq .05$, Z indicates that the variable was orthogonally transformed, Housing (1 = D&S, 2 = Elsewhere), NS = not significant.

the PGWB Index while controlling for the biographical variables. The PGWB Index was entered as the dependent variable. For each regression, forward entry of the biographical variables was first conducted, and then each of the time perception variables was separately forced to enter last into each regression. This procedure thus determined which time perception variables had significant effects on the PGWB Index while controlling for the biographical variables. Thus seven regressions resulted. The adjusted R^2 value were interpreted, and the R^2 values were also stated for the significant variables.

When interpreting the results,it is recognized that any other causally effective variables that the significant independent variable may be related to but not included in the analysis will have an effect on the dependent variable.

When Meaning was forced to enter last into the regression, it accounted for 26.6% additional significant variance (unique variance) in the PGWB Index, that was not accounted for by the housing variable (see Table 4.45), and when it was entered, the housing variable no longer accounted for additional significant variance. The R^2 change was .27035. The positive unstandardized slope of the PGWB Index and Meaning ($B = 10.42018$) indicates that as the Meaning scores increase by one unit (i.e., perceive more positive meaning), the PGWB Index raw scores tended to significantly increase by 10.42018 units (i.e., perceive

Table 4.45

Variance Of PGWB Index Explained By Independent Variables When Time Variables Separately Entered Last

Dependent	Independent	F,p	Adjusted R^2	Adjusted R^2 Change
PGWB Index	Housing	.0051*	.07967	
	ZMeaning	.0000*	.34540	.26573
PGWB Index	Housing	.0051*	.07967	
	ZFast Tempo	.0201*	.06876	NS
PGWB Index	Housing	.0051*	.07967	
	ZSlow Tempo	.0137*	.07738	NS
PGWB Index	Housing	.0051*	.07967	
	ZAttention To Death	.0041*	.10422	NS
PGWB Index	Housing	.0051*	.07967	
	ZFuture Orientation	.0130*	.07850	NS
PGWB Index	Housing	.0051*	.07967	
	ZPast Orientation	.0005*	.14803	.06836
PGWB Index	Housing	.0051*	.07967	
	Consciousness Index	.0162*	.07357	NS

Note. *F,$p \leq .05$, N = 85, NS = not significant, Z indicates that the variable was orthogonally transformed Housing (1 = D&S, 2 = Elsewhere), Adjusted R^2 Change = Preceding Adjusted R^2 - Adjusted R^2 (unique variance).

higher level of general well-being), and as the Meaning scores decrease by one unit (i.e., perceive less positive meaning of time), the PGWB Index raw scores tended to significantly decrease by 10.42018 units (i.e., perceive lower level of general well-being) (see Table 4.46 for standardized slope).

When Fast Tempo, Slow Tempo, Attention to Death, Future Orientation, and the Consciousness Index were all entered separately and last into the regressions, none of them accounted for any additional significant variance in the PGWB Index. However, the housing variable did account for 8.0% of the significant variance in the PGWB Index in all these regressions when it was entered first as one of the biographical variables (see Table 4.45). The R^2 was .09063.

When Past Orientation was forced to enter last into the regression analysis, it accounted for an additional 6.8% of the significant variance (unique variance) in the PGWB Index, that was not accounted for by the housing variable (see Table 4.45). The R^2 change was .07769. The negative standardized slope of the PGWB Index and Past Orientation indicates that as the standardized scores for Past Orientation increase one standardized unit (i.e., focus more on the past), the PGWB Index standardized scores tended to significantly decrease by .27972 standardized units (i.e., perceive lower level of general well-being), and as the scores for Past Orientation decrease one standardized unit

Table 4.46

Standardized Slopes (Beta) Of PGWB Index And Independent Variables When Time Variables Separately Entered Last

Dependent	Independent	ß	t	t-p
PGWB Index	Age			NS
	Grade			NS
	Housing	.15772	1.722	.0888
	Years Since Not Prisoners			NS
	Years Since Admission			NS
	ZMeaning	.53935	5.890	.0000*
PGWB Index	Age			NS
	Grade			NS
	Housing	.29956	2.834	.0058*
	Years Since Not Prisoners			NS
	Years Since Admission			NS
	ZFast Tempo	.01732	.164	.8702
PGWB Index	Age			NS
	Grade			NS
	Housing	.29328	2.789	.0066*
	Years Since Not Prisoners			NS
	Years Since Admission			NS
	ZSlow Tempo	-.09367	-.891	.3757

Table 4.46 Continued

Dependent	Independent	ß	t	t-p
PGWB Index	Age			NS
	Grade			NS
	Housing	.28446	2.744	.0075*
	Years Since Not Prisoners			NS
	Years Since Admission			NS
	ZAttention To Death	-.18760	-1.809	.0740
PGWB Index	Age			NS
	Grade			NS
	Housing	.28739	2.718	.0080*
	Years Since Not Prisoners			NS
	Years Since Admission			NS
	ZFuture Orientation	.09998	.946	.3471
PGWB Index	Age			NS
	Grade			NS
	Housing	.27751	2.746	.0074*
	Years Since Not Prisoners			NS
	Years Since Admission			NS
	ZPast Orientation	-.27972	-2.768	.0070*
PGWB Index	Age			NS
	Grade			NS
	Housing	.30657	2.910	.0046*
	Years Since Not Prisoners			NS
	Years Since Admission			NS
	ZConsciousness Index	-.07089	-.673	.5029

Note. n = 85, *t-$p \leq .05$, NS = not significant, Z indicates that the variable was orthogonally transformed, Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed.

(i.e., focus less on the past), the PGWB Index standardized scores tended to significantly increase by .27972 standardized units (i.e., perceive higher level of general well-being) (see Table 4.46). Past Orientation explained more of the significant variance in the PGWB Index compared to the housing variable because its standardized slope was larger.

Discussion Of Results

Only two out of the seven time perception variables explained any significant variance in the PGWB Index when controlling for the biographical variables. They were Meaning and Past Orientation. Meaning accounted for 26.6% unique variance in the PGWB Index, and its perception affected the PGWB Index raw scores by approximately 10 units (B = 10.42018). The PGWB Index has a range of 0 to 110 possible scores. Therefore, the meaning of time had an important effect on the inmates' perceptions of well-being. Those inmates who perceived a more positive meaning of time tended to perceive a significantly higher level of general well-being, and those who perceived a less positive meaning of time tended to perceive a significantly lower level of general well-being, regardless of the biographical variables. Past Orientation explained 6.8% unique variance in the PGWB Index, when controlling for the biographical variables. Past Orientation had more of a significant relative effect on the variance of the PGWB Index compared to the housing variable. Those inmates who tended to focus their thoughts and activities more (less) to the past tended to perceive a significantly lower (higher) level of general well-being. Whether the inmates were housed in D&S or elsewhere in the prison generally explained 8.0% of the significant variance in the PGWB Index. However, when Meaning was included in the analysis, the housing variable no longer accounted for any additional significant variance in the PGWB Index.

Comparison Of Regression Statistics Between Using Transformed TES And Untransformed TES Variables In The Analysis

The comparison of the regression statistics when using the transformed TES variables in the analysis with using the original TES variables in the analysis is reported in Table 4.47. The variables that were significant and not significant were the same between the two procedures. However, the adjusted R^2 and Beta values of the TES and housing variables were all less when using the transformed TES variables compared to when using the original TES variables, except when Fast Tempo was analysed. When Fast Tempo was analysed using the transformed variables, the adjusted R^2 for Fast Tempo and for the housing variable increased. The transformed Beta value for Fast Tempo was positive, whereas the Beta value was negative when using the untransformed Fast Tempo. The original correlation between

Table 4.47

Comparison Of Regression Statistics Between Using Transformed TES And Original Variables When Time Variables Separately Entered Last

Dependent Variable = PGWB Index

Independent Variable	F-p	Adjusted R^2	Beta	t-p
Housing	.0051*	.07967	.15772	.0888
ZMeaning	.0000*	.34540	.53935	.0000*
Housing	.0051*	.07967	.11355	.1970
Meaning	.0000*	.41951	.61470	.0000*
Housing	.0051*	.07967	.29956	.0058*
ZFast Tempo	.0201*	.06876	.01732	.8702
Housing	.0051*	.07967	.30198	.0054*
Fast Tempo	.0202*	.06860	-.01207	.9093
Housing	.0051*	.07967	.29328	.0066*
ZSlow Tempo	.0137*	.07738	-.09367	.3757
Housing	.0051*	.07967	.28752	.0072*
Slow Tempo	.0066*	.09359	-.15722	.1354
Housing	.0051*	.07967	.28446	.0075*
ZAttention To Death	.0041*	.10422	-.18760	.0740
Housing	.0051*	.07967	.26384	.0107*
Attention To Death	.0004*	.15615	-.29495	.0045*

Table 4.47 Continued

Independent Variable	F-p	Adjusted R^2	Beta	t-p
Housing	.0051*	.07967	.28739	.0080*
ZFuture Orientation	.0130*	.07850	.09998	.3471
Housing	.0051*	.07967	.27575	.0106*
Future Orientation	.0071*	.09192	.15347	.1493
Housing	.0051*	.07967	.27751	.0074*
ZPast Orientation	.0005*	.14803	-.27972	.0070*
Housing	.0051*	.07967	.25922	.0104*
Past Orientation	.0001*	.19185	-.34959	.0007*

Note. n = 85, *F,$p \leq .05$, *t-$p \leq .05$, Z indicates that the variable was orthogonally transformed, Housing (1 = D&S, 2 = Elsewhere).

the PGWB Index and Fast Tempo was positive therefore, the untransformed Beta value is misleading.

Regression Analysis Of The Biographical Variables And PGWB Index While Controlling For Time Variables Altogether

Introduction

The purpose of the regression analysis was to identify which biographical variables have significant effects on the PGWB Index while controlling for the seven time perception variables altogether. The PGWB Index was entered as the dependent variable. Forward entry of all seven time perception variables together proceeded first. Then forward entry of the five biographical variables was conducted. All seven time perception variables were first entered altogether to control for their influence when determining which biographical variables had significant effects on the PGWB Index. One regression resulted. Because the sample consisted of 85 subjects and 12 independent variables were included in the analysis, the adjusted R^2 values were interpreted because they give a better estimate of what the population value might be, although both the R^2 adjusted and the R^2 values are reported in Table 4.48.

Results Of The Regression Analysis

None of the biographical variables, including the housing variable, explained any additional significant variance in the PGWB Index when the seven time perception variables were controlled by entering them first (see Table

Table 4.48

Variance Of PGWB Index Explained By Independent Variables When Time Variables First Entered Altogether

x = age, grade, housing, years since not prisoners, years since admission all entered

Dependent	Independent	F,p	R^2	Adjusted R^2	Adjusted R^2 Change
PGWB Index	ZMeaning	.0000*	.33786	.32989	
	ZPast Orientation	.0000*	.42971	.41580	.08591
	ZAttention To Death	.0000*	.47498	.45553	.03973
	X	NS			NS

Note. N = 85, F,$p \leq .05$, NS = not significant, Z indicates that the variable was orthogonally transformed, Adjusted R^2 Change = Previous Adjusted R^2 - Adjusted R^2 (unique variance).

4.48 & 4.49).

Comparison Of Regression Statistics Between Using Transformed TES And Untransformed TES Variables In The Analysis

The comparison of the regression statistics when using the transformed TES variables in the analysis, with using the original TES variables in the analysis is reported in Table 4.50. Transformed Attention To Death had a significant effect on the PGWB Index, whereas the original Attention to Death variable did not have a significant effect on the PGWB Index. The adjusted R^2 values for the transformed variables were less than the adjusted R^2 values for the original variables. The Beta value for transformed Meaning was lower than the Beta value for the original Meaning variable. However, the Beta value for the transformed Past Orientation variable was higher than the Beta value for the original Past orientation variable. All the biographical variables were non-significant using both procedures.

Regression Analysis Of The Time Perception Variables Altogether And PGWB Index While Controlling For Biographical Variables

Introduction

The purpose of the regression analysis was to identify which time perception variables have significant effects on the PGWB Index when they are entered altogether, and while

Table 4.49

Standardized Slopes (Beta) Of PGWB Index And Independent Variables When Time Variables First Entered Altogether

Dependent	Independent	Beta	t	t-p
PGWB Index	ZMeaning	.58126	7.220	.0000*
	ZPast Orientation	-.30307	-3.764	.0003*
	ZAttention To Death	-.21275	-2.643	.0099*
	ZFast Tempo		.533	.5956
	ZSlow Tempo		-1.476	.1438
	ZFuture Orientation		1.752	.0837
	Consciousness Index		-1.177	.2427
	Age		-.504	.6155
	Grade		-.165	.8696
	Housing		1.335	.1857
	Years Since Not Prisoners		1.007	.3168
	Years Since Admission		.422	.6739

Note. N = 85, *t-p$\leq$.05, Z indicates that the variable was orthogonally transformed, Grade = highest grade completed, Housing (1 = D&S, 2 = Elsewhere).

Table 4.50

Comparison Of Regression Statistics Between Using Transformed TES And Original Variables When Time Variables First Entered Altogether

Dependent Variable = PGWB Index

Independent	F,p	Adjusted R^2	Beta	t-p
ZMeaning	.0000*	.32989	.58126	.0000*
ZPast Orientation	.0000*	.41580	-.30307	.0003*
ZAttention To Death	.0000*	.45553	-.21275	.0099*
Meaning	.0000*	.41467	.60014	.0000*
Past Orientation	.0000*	.48088	-.27207	.0010*
Attention To Death	NS			.2566

Note. N = 85, *F,$p \leq .05$, *t-$p \leq .05$, Z indicated that the variable was orthogonally transformed, NS = not significant.

the biographical variables are controlled. Forward entry of all the biographical variables preceded first. Then forward entry of the seven time perception variables altogether was conducted in order to take into account all of their influences. One regression resulted. Because the sample consisted of 85 subjects, and 12 independent variables were included in the analysis, the adjusted R^2 values were interpreted because they give a better estimate of what the population value might be, although both the R^2 adjusted and the R^2 values are reported in Table 4.51.

Results Of The Regression Analysis

When interpreting the results it is recognized that any other causally effective variables that the significant independent variable may be related to but not included in the analysis will have an effect on the dependent variable.

Meaning accounted for an additional 26.6% of the significant variance in the PGWB Index, when the biographical variables were controlled. Past Orientation then explained an additional 8.0% of the variance, and Attention to Death explained an additional 3.6% of the significant variance in the PGWB Index (see Table 4.51)

The positive standardized slope of the PGWB Index and Meaning indicates that as the standardized scores for Meaning increase by one standardized unit (i.e., perceive more positive meaning), the PGWB Index standardized scores tended to significantly increase by .55154 standardized

Table 4.51

Variance Of PGWB Index Explained By Independent Variables When Time Variables Entered Last Altogether

Dependent	Independent	F,p	R^2	Adjusted R^2	Adjusted R^2 Change
PGWB Index	Housing	.0051*	.09063	.07967	
	ZMeaning	.0000*	.36098	.34540	.26573
	ZPast Orientation	.0000*	.44561	.42508	.07968
	ZAttention To Death	.0000*	.48641	.46078	.03566

Note. N = 85, *F,$p \leq .05$, Z indicates that the variable was orthogonally transformed, Housing (1 = D&S, 2 = Elsewhere), Adjusted R^2 Change = Preceding Adjusted R^2 - Adjusted R^2 (unique variance).

units (i.e., perceive higher level of general well-being), and as the standardized scores for Meaning decrease by one standardized unit (i.e., perceive less positive meaning), the PGWB Index standardized scores tended to significantly decrease by .55154 standardized units (i.e., perceive lower level of general well-being).

The negative standardized slope of the PGWB Index and Past Orientation indicates that as the standardized scores for Past Orientation increase by one standardized unit (i.e., focus more to the past), the PGWB Index standardized scores tended to significantly decrease by .29366 standardized units (i.e., perceive lower level of general well-being), and as the standardized scores for Past Orientation decrease by one standardized unit, (i.e., focus less to the past), the PGWB Index standardized scores tended to significantly increase by .29366 standardized units (i.e., perceive higher level of general well-being).

The negative standardized slope of the PGWB Index and Attention to Death indicates that as the standardized scores for Attention To Death increase by one standardized unit, (i.e., focus more to personal death), the PGWB Index standardized scores tended to significantly decrease by .20286 standardized units (i.e., perceive lower level of general well-being), and as the standardized scores for Attention to Death decrease by one standardized unit (i.e., focus less attention to personal death), the PGWB Index standardized scores tended to significantly increase by .20286 standardized units (i.e., perceive higher level of general well-being) (see Table 4.52).

Discussion Of Results

Although, whether the inmates were housed in D&S or elsewhere in the prison accounted for 8.0% of the significant variance in the PGWB Index, it did not provide additional significant variance in the PGWB Index when Meaning entered the regression. Meaning explained 26.6% additional significant variance (unique variance), Past Orientation explained an additional 8.0% significant variance (unique variance), and Attention to Death explained an additional 3.6% of the significant variance (unique variance) in the PGWB Index when considering the influence of all the time perception variables together and all the biographical variables. The other biographical variables did not account for any of the significant variance in the PGWB Index. The unstandardized slopes were 10.6557, -5.67348, and -3.91929 for Meaning, Past Orientation, and Attention to Death respectively. These three time perception variables altered the raw scores on the PGWB Index by approximately 4 to 11 units. The equation for predicting the PGWB Index score follows (a = 55.087773): PGWB Index score = 55.08773 + 10.65577 (meaning score) - 5.67348 (Past Orientation score) -3.91929 (Attention to Death score).

Table 4.52

Standardized Slopes (Beta) Of PGWB Index And Independent Variables When Time Variables Entered Last Altogether

Dependent	Independent	Beta	t	t-p
PGWB Index	Age		-.766	.4459
	Grade		-.442	.6595
	Years Since Not Prisoners		.968	.3360
	Years Since Admission		.210	.8345
	Housing	.11183	1.335	.1857
	ZMeaning	.55154	6.632	.0000*
	ZPast Orientation	-.29366	-3.651	.0005*
	ZAttention To Death	-.20286	-2.521	.0137*
	ZFast Tempo		.417	.6776
	ZSlow Tempo		-1.369	.1748
	ZFuture Orientation		1.578	.1186
	Consciousness Index		-1.275	.2059

Note. N = 85, *t-p$\leq$.05, Z indicates that the variable was orthogonally transformed, Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed.

Comparison Of Regression Statistics Between Using Transformed TES And Untransformed TES Variables In The Analysis

The comparison of the regression statistics when using the transformed TES variables in the analysis, with using the original TES variables in the analysis is reported in Table 4.53. Transformed Attention to Death had a significant effect on the PGWB Index, whereas, the original Attention to Death did not. The adjusted R^2 values of the housing variable remained the same between the two procedures, however the Beta value for the housing variable was higher when analysed with the transformed TES variables, compared to the original procedure. The adjusted R values were lower for the transformed Meaning and Past Orientation variables compared to the adjusted R^2 values for the original variables. The Beta value for transformed Meaning was lower. However, the Beta value for transformed Past Orientation was higher than the original. All the other biographical variables were non-significant using both procedures.

Regression Analysis Of Time Perception Variables And Biographical Variables While Controlling For The PGWB Index

Introduction

The purpose of this regression analysis was to identify which biographical variables have significant effects on each of the time perception variables while controlling for

Table 4.53

Comparison Of Regression Statistics Between Using Transformed TES And Original Variables When Time Variables Entered Last Altogether

Dependent Variable = PGWB Index

Independent	F,p	Adjusted R^2	Beta	t-p
Housing	.0051*	.07967	.11183	.1857
ZMeaning	.0000*	.34540	.55154	.0000*
ZPast Orientation	.0000*	.42508	-.29366	.0005*
ZAttention To Death	.0000*	.46074	-.20286	.0137*
Housing	.0051*	.07967	.09465	.2551
Meaning	.0000*	.41951	.57241	.0000*
Past Orientation	.0000*	.48286	-.26576	.0013*
Attention To Death	NS			.2692

Note. N = 85, *F,p$\leq$.05, *t-p$\leq$.05, Z indicated that the variable was orthogonally transformed, _Housing_ (1 = D&S, 2 = Elsewhere), NS = not significant.

the PGWB Index. Each of the time perception variables was entered as the dependent variable. For each regression, the PGWB variable was entered first, and then forward entry of the biographical variables was conducted. This procedure thus determined which biographical variables had significant effects on each of the time perception variables while controlling for the effects of the PGWB Index. Thus seven regression resulted. The adjusted R^2 values were interpreted, however, the R^2 values were also stated for the significant variables.

Results Of The Regression Analysis

When interpreting the results, it is recognized that any other causally effective variables that the significant independent variables may be related to but not included in the analysis will have an effect on the dependent variable. Of the five biographical variables analysed, only two had significant effects on some of the time perception variables. The number of years since they were not prisoners accounted for 3.6% additional significant variance (unique variance) in Meaning, that was not accounted for by the PGWB Index (see Table 4.54). The R^2 change was .04317. The number of years since admission accounted for 8.4% additional significant variance (unique variance) in Past Orientation, that was not accounted for by the PGWB Index (see Table 4.54). The R^2 change was .09284.

The negative standardized slope of Meaning and years

Table 4.54

Variance Of Time Variables Explained By Independent Variables When PGWB Index Entered First

X = age, grade, Housing, Years Since Not Prisoners, Years Since Admission, All entered

Dependent	Independent	F,p	Adjusted R^2	Adjusted R^2 Change
Consciousness Index	PGWB Index	.6692	.00000	
	x	NS		
ZMeaning	PGWB Index	.0000*	.32989	
	Years Since Not Prisoners	.0000*	.36594	.03605
ZFast Tempo	PGWB Index	.6954	.00000	
	Grade	.1194	.02735	
ZSlow Tempo	PGWB Index	.2822	.00204	
	x	NS		
ZAttention To Death	PGWB Index	.0506	.03376	
	x	NS		
ZFuture Orientation	PGWB Index	.2037	.00758	
	x	NS		
ZPast Orientation	PGWB Index	.0048*	.08091	
	Years Since Admission	.0002*	.16481	.0839

Note. N=85, *F,$p \leq .05$, Z indicates variable was transformed, Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed, NS = not significant, Adjusted R^2 Change = Preceding Adjusted R^2 - Adjusted R^2 (unique variance).

since not prisoners indicates that as the number of years since they were not prisoners (i.e., free) increases one standardized unit, the Meaning standardized scores tended to significantly decrease by .20777 standardized units (i.e., perceive less positive meaning of time), and as the number of years since they were not prisoners decreases one standardized unit, the Meaning standardized scores tended to significantly increase by .20777 standardized units (i.e., perceive more positive meaning of time). The number of years since they were not prisoners had relatively less of a significant effect on the variance of meaning compared to the PGWB Index because the standardized slope for it was relatively less than that of the PGWB Index (see Table 4.55).

The negative standardized slope of Past Orientation and years since admission indicates that as the number of years since they were admitted to this prison increases one standardized unit, the Past Orientation standardized scores tended to significantly decrease by .30591 standardized units (i.e., focus thoughts and activities less to the past), and as the number of years since they were admitted to this prison decreases one standardized unit, the Past Orientation standardized scores tended to significantly increase .30591 standardized units (i.e., focus thoughts and activities more to the past). The number of years since they were admitted to this prison had relatively more of a

Table 4.55

Standardized Slopes (Beta) Of Time Variables And Independent Variables When PGWB Index Entered First

Dependent	Independent	Beta	t	t-p
ZMeaning	PGWB Index	.58147	6.693	.0000*
	Years Since Not Prisoners	-.20777	-2.391	.0191*
	Age		-.637	.5257
	Grade		1.601	.1134
	Housing		1.061	.2920
	Years Since Admission		.975	.3322
ZPast Orientation	PGWB Index	-.27589	-2.756	.0072*
	Years Since Not Prisoners		.218	.8280
	Age		-1.537	.1283
	Grade		-.462	.6451
	Housing		.490	.6254
	Years Since Admission	-.30591	-3.056	.0030*

Note. N=85, *t-p≤.05, Z indicates variable was transformed, Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed.

significant effect on Past Orientation compared to the PGWB Index because the standardized slope for it was relatively greater than that of the PGWB Index (see Table 4.55).

Discussion Of Results

Only two out of the five biographical variables analysed explained any significant variance in the time perception variables when controlling for the influence of the PGWB Index (i.e., perception of general well-being). They were the number of years since they were not prisoners, and the number of years since they were admitted to this prison, which affected the meaning of time and the extent to which they focused their thoughts and activities to the past respectively. These two biographical variables did not significantly affect any of the other time perception variables, and the other biographical variables analysed did not significantly affect any of the time perception variables.

The number of years since they were not prisoners (i.e., free) only explained 3.6% unique variance in their perception of the meaning of time, but their perception of general well-being (i.e., PGWB Index) had more of a significant effect on their perception of the meaning of time. The number of years since they were not prisoners only affected the Meaning raw scores by .04716 units (B = -.04716); therefore it was not very important in their perception of the meaning of time. The range of possible scores for Meaning is 1 to 7. However, the number of years since they were admitted to this prison explained 8.4% unique variance in the extent that they focused their thoughts and activities to the past, and it had more of a significant effect on their perception of the past compared to their perception of general well-being (i.e., PGWB Index). However it only affected the Past Orientation raw scores by .10573 units (B = -10573) and therefore it was not very important in the inmates' perceptions of Past Orientation. The range of possible scores for Past Orientation is 1 to 6. Those inmates in the sample who have more (less) years since they were not prisoners (i.e., free), and who have spent more (less) years in this prison since admission tended to perceive a significantly less (more) positive meaning of time, and tended to focus their thoughts and activities significantly less (more) on the past.

Comparison Of Regression Statistics Between Using Transformed TES Variables And Untransformed TES Variables In The Analysis

The comparison of the regression statistics when using the transformed TES variables in the analysis with using the original TES variables in the analysis is reported in Table 4.56. Only when Past Orientation was entered as the dependent variable were the variables that were significant and not significant the same between both procedures of

Table 4.56

Comparison Of Regression Statistics Between using Transformed TES And Original Variables When PGWB Index Entered First

x = age, grade, Housing, Years Since Not prisoners, Years Since Admission, All entered

Dependent	Independent	F,p	Adjusted R^2	Beta	t-p
ZMeaning	PGWB Index	.0000*	.32989	.58147	.0000*
	Years Since Not Prisoners	.0000*	.36594	-.20777	.0191*
Meaning	PGWB Index	.0000*	.41467	.61418	.0000*
	Years Since Not Prisoners	.0000*	.45329	-.20833	.0102*
	Grade	.0000*	.47378	.16593	.0438*
ZAttention To Death	PGWB Index	.0506	.03376	-.21275	.0506*
	X	NS			NS
Attention To Death	PGWB Index	.0022*	.09699	-.32824	.0022*
	X	NS			NS
ZPast Orientation	PGWB Index	.0048*	.08091	-.27589	.0072*
	Years Since Admission	.0002*	.16481	-.30591	.0030*
Past Orientation	PGWB Index	.0003*	.13456	-.35639	.0005*
	Years Since Admission	.0000*	.19953	-.27261	.0067*

Note. N=85, *F,$p\leq.05$, *t-$p\leq.05$, Z indicates variable was transformed, Housing (1 = D&S, 2 = Elsewhere), NS = not significant, Grade = highest grade completed.

using the transformed TES and untransformed TES variables in the analysis. When Meaning was entered as the dependent variable, the PGWB Index and number of years since they were not prisoners were significant. However, when untransformed Meaning was entered as the dependent variable, grade was also significant. When transformed Attention to Death was entered as the dependent variable, none of the independent variables were significant. However, when untransformed Attention to Death was entered as the dependent variable, the PGWB Index was significant. The adjusted R^2 values, when using the untransformed TES variables, were larger than when using the transformed TES variables in the analysis. The Beta values, when using the untransformed TES variables were larger than when using the transformed TES variables in the analysis, except for the variable, years since admission, when Past Orientation was the dependent variable. In this case, the variable, years since admission, was larger when transformed Past Orientation was used in the analysis.

Regression Analysis Of Time Perception Variables And PGWB Index While Controlling For Biographical Variables

Introduction

The purpose of this regression analysis was to determine if the PGWB Index had significant effects on any of the time perception variables while controlling for the biographical variables. Each of the time perception variables was entered as the dependent variable. For each regression, forward entry of the biographical variables proceeded first, and then the PGWB Index was forced to enter last. This procedure thus determined whether the PGWB Index had significant effects on each of the time perception variables while controlling for the effects of the biographical variables. Thus seven regressions resulted. The adjusted R^2 values were interpreted, and the r^2 values were also stated for the significant variables.

Results Of The Regression Analysis

When interpreting the results, it is recognized that any other causally effective variable that the significant independent variable may be related to and not included in the analysis, will have an effect on the dependent variable. The PGWB Index, significantly affected only two out of the seven time perception variables: Meaning and Past Orientation (see Table 4.57). The PGWB Index accounted for 22.3% additional significant variance (unique variance) in Meaning, that was not accounted for by housing, age, and grade. The R^2 change was .22296. The PGWB Index accounted for 6.6% additional significant variance (unique variance) in Past Orientation, that was not accounted for by years since admission. The R^2 change was .07551.

When the PGWB Index was entered last into the regression, housing, age, and grade no longer accounted for additional significant variance in Meaning. The positive

Table 4.57

Variance Of Time Variables Explained By Independent Variables When PGWB Index Entered Last

X = age, grade, Housing, Years Since Not Prisoners, Years Since Admission all entered

Dependent	Independent	F,p	Adjusted R^2	Adjusted R^2 Change
Consciousness Index	X	NS		
	PGWB Index	.6692	.00000	
ZMeaning	Housing	.0140*	.05942	
	Age	.0070*	.09225	.03283
	Grade	.0020*	.13461	.04236
	PGWB Index	.0000*	.35791	.22330
ZFast Tempo	Grade	.0387*	.03905	
	PGWB Index	.1194	.02735	NS
ZSlow Tempo	X	NS		
	PGWB Index	.2822	.00204	
ZAttention To Death	X	NS		
	PGWB Index	.0506	.03376	
ZFuture Orienation	X	NS		
	PGWB Index	.2037	.00758	
ZPast Orientation	Years Since Admission	.0020*	.09845	
	PGWB Index	.0002*	.16481	.06636

Note. N=85, *F,$p \leq .05$, Z indicates variable was transformed, Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed, NS = not significant, Adjusted R^2 Change = Preceding Adjusted R^2 - Adjusted R^2 (unique variance).

unstandardized slope of Meaning and the PGWB Index (B = .02620) indicated that as the raw scores for the PGWB Index increase one unit (i.e., perceive higher level of general well-being), the raw scores for Meaning tended to significantly increase .02620 units (i.e., perceive more positive meaning), and as the raw scores for the PGWB Index decrease by one unit (i.e., perceive a lower general level of well-being), the raw scores for Meaning tended to significantly decrease by .02620 units (i.e., perceive less positive meaning) (see Table 4.58).

The negative standardized slope of Past Orientation and the PGWB Index indicated that as the standardized scores for the PGWB Index increase one standardized unit (i.e., perceive a higher level of general well-being), the Past Orientation standardized scores tended to significantly decrease by .27589 standardized units (i.e., focus less attention to the past), and as the standardized scores for the PGWB Index decrease one standardized unit (i.e., perceive a lower general level of well-being), the Past Orientation standardized scores tended to significantly increase by .27589 standardized units (i.e., focus more attention to the past). The PGWB Index had relatively less of a significant effect on Past Orientation compared to the years since admission because the standardized slope was relatively smaller (see Table 4.58).

5

Table 4.58

Standardized Slopes (Beta) Of Time Variables And Independent Variables When PGWB Index Entered Last

Dependent	Independent	Beta	t	t-p
ZMeaning	Housing	.09383	.987	.3265
	Age	-.16765	-1.858	.0668
	Grade	.15695	1.686	.0957
	Years Since Not Prisoners		-1.828	.0713
	Years Since Admission		-.748	.4567
	PGWB Index	.50615	5.401	.0000*
ZFast Tempo	Housing		.232	.8169
	Age		.406	.6860
	Grade	.22470	2.101	.0387*
	Years Since Not Prisoners		-.542	.5892
	Years Since Admission		-.498	.6197
	PGWB Index	NS	-.046	.9637
ZPast Orientation	Housing		.490	.6254
	Age		-1.537	.1283
	Grade		-.462	.6451
	Years Since Not Prisoners		.218	.8280
	Years Since Admission	-.30591	-3.056	.0030*
	PGWB Index	-.27589	-2.756	.0072*

Note. N=85, *t-$p \leq .05$, Z indicates variable was transformed, Housing (1 = D&S, 2 = Elsewhere), NS = not significant, Grade = highest grade completed.

Discussion Of Results

In discussing the results of the regression analysis, it is recognized that the variables that had significant effects on the time perception variables also include any casually effective variables that they may be related to that were not included in the analysis. The PGWB Index explained significant variance in only two out of the seven time perception variables (i.e., Meaning, Past Orientation) when controlling for the influence of the biographical variables.

The inmates' perceptions of their general well-being explained 22.3% additional significant variance (unique variance) in their perceptions of the meaning of time, and their perceptions of general well-being resulted in housing, age, and grade no longer explaining additional significant variance in their perceptions of the meaning of time. However, because their perceptions of general well-being only altered the Meaning raw scores by .02620 units, the importance of their perceptions of general well-being to their perceptions of the meaning of time was minimal. The range of possible scores for meaning is 1 to 7. Their perceptions of their general well-being explained 6.6% additional variance (unique variance) in the extent to which they focus their thoughts and activities to the past. However, the inmates' perceptions of their general well-being had less of a significant effect on their perceptions of the past compared to the number of years since admission to this prison. Because their perceptions of general well-being only affected the Past Orientation raw scores by .01428 units, its importance to the inmates' perceptions of past orientation was minimal. The range of possible scores for Past Orientation is 1 to 6. Those inmates in the sample who perceived a higher (lower) level of general well-being, tended to perceive a significantly more (less) positive meaning of time, and to focus their thoughts and activities significantly less (more) to the past.

The highest grade completed was the only variable that had a significant effect on their perceptions of the extent to which time was passing quickly over the life time (Fast Tempo). It explained 3.9% of the variance in Fast Tempo. The R^2 was .05049. Because the highest grade completed altered the Fast Tempo raw scores by only .09423 units (B = .09423), it had only some importance in the inmates' perceptions of Fast Tempo. Those inmates in the sample who completed a higher (lower) grade at school tended to perceive time as passing significantly more (less) quickly over the life time. None of the other biographical variables that were not discussed had any significant effect on any of the time perception variables.

Comparison Of Regression Statistics Between Using Transformed TES Variables And Untransformed TES Variables In The Analysis

The comparison of the regression statistics when using the transformed TES variables in the analysis with using the original TES variables in the analysis is reported in Table 4.59. The significant and non-significant variables were the same in both procedure when Meaning and Past Orientation were the dependent variables. However, they were different in both procedures when Fast Tempo and Attention to Death were the dependent variables. When Fast Tempo was the dependent variable, grade was significant using transformed Fast Tempo, and not significant using untransformed Fast Tempo. When Attention to Death was the dependent variable, the PGWB Index was significant using untransformed Attention to Death and not significant using transformed Attention to Death. The adjusted R^2 values were greater using untransformed Meaning and Attention to Death, however the adjusted R^2 values were greater using transformed Fast Tempo. The adjusted R^2 values for year since admission was greater using transformed Past Orientation, and the adjusted R^2 value of the PGWB Index was greater using untransformed Past Orientation. All the Beta values were greater when using untransformed Meaning, Fast Tempo, and Attention to Death except that the Beta value for age was greater using transformed Meaning. The Beta value for years since

Table 4.59

Comparison Of Regression Statistics Between Using Transformed TES And Original Variables When PGWB Index Entered Last

x = age, grade, Housing, Years Since Not Prisoners, Years Since Admission all entered

Dependent	Independent	F,p	Adjusted R^2	Beta	t-p
ZMeaning	Housing	.0140*	.05942	.09383	.3265
	Age	.0070*	.09225	-.16765	.0668
	Grade	.0020*	.13461	.15698	.0957
	PGWB Index	.0000*	.35791	.50615	.0000*
Meaning	Housing	.0045*	.08212	.10764	.2239
	Grade	.0017*	.12284	.17634	.0436*
	Age	.0004*	.16852	-.15483	.0669
	PGWB Index	.0000*	.45188	.56696	.0000*
ZFast Tempo	Grade	.0387*	.03905	.22470	.0387*
	PGWB Index	.1194	.02735	NS	.9637
Fast Tempo	X	NS			NS
	PGWB Index	.9187	.00000	.01124	.9187
ZAttention To Death	X	NS			NS
	PGWB Index	.0506	.03376	-.21275	.0506

Table 4.59 Continued

Comparison Of Regression Statistics Between Using Transformed TES And Original variables When PGWB Index Entered Last

x = age, grade, Housing, Years Since Not Prisoners, Years Since Admission all entered

Dependent	Independent	F,p	Adjusted R^2	Beta	t-p
Attention to Death	X	NS			NS
	PGWB Index	.0022*	.09699	-.32824	.0022*
ZPast Orientation	Years Since Admission	.0020*	.09845	-.30591	.0030*
	PGWB Index	.0002*	.16481	-.27589	.0072*
Past Orientation	Years Since Admission	.0046*	.08165	-.27261	.0067*
	PGWB Index	.0000*	.19953	-.35639	.0005*

Note. N=85, *F,$p \leq .05$, *t-$p \leq .05$, Z indicates variable was transformed, NS = not significant, Housing (1 = D&S, 2 = Elsewhere), Grade = highest grade completed.

admission was greater using transformed Past Orientation, and the Beta value for the PGWB Index was greater using untransformed Past Orientation.

CHAPTER V

DISCUSSION

Introduction

In this final chapter, the major findings are summarized and discussed with respect to the research questions and the conceptual framework. Some other major findings are also discussed. Conclusions are drawn, and the implications of the study for nursing care are then discussed. The study limitations and the directions for future research follow.

Summary Of Findings

The conceptual framework depicts a reciprocal relationship between time and well-being perception, with person-environment factors affecting both, and with observed behaviors and symptoms affecting and being affected by both time and well-being perception (see Figure 1). Therefore, the major findings are summarized and discussed in relation to the research questions by first focusing on the effects of each of the time perception variables on general well-being perception (i.e., PGWB Index), by focusing on the effects of general well-being perceptions (i.e., PGWB Index) on each of the time perception variables (i.e., Meaning, Fast Tempo, Slow Tempo, Attention To Death, Future Orientation, Past Orientation, Consciousness Index), and then by focusing on the effects of the time perception variables altogether on general well-being perception (i.e., PGWB Index). General effects of the person-environment variables on the relationship between time and well-being perception are also discussed.

The effects of the person-environment variables analysed for this summary were the following: age, highest grade completed, whether they were housed in disassociation and segregation (D&S) or elsewhere in the prison (i.e., population, induction, and health care), the number of years since they were not prisoners, and the number of years since they were admitted to this prison. A summary of the effects of the independent variables on the dependent variables from the two perspectives are reported in Table 5.1. The independent variables are the predictor variables in the regression equations. The dependent variables are the criterion variables in the regression equations. How the objective symptoms and behaviors may affect or be affected by time perception and by general well-being perception will be postulated because these relationships were not analysed in the study. In discussing the findings, it is recognized that the variables that had significant effects on the dependent variables also include any causally effective variables that they may be related to that were not included in the analysis.

Table 5.1

Summary Effects Of Independent Variables On Dependent Variables

Dependent	Independent Variables		Dependent	Independent Variables	
PGWB	Biographical	Time	Time	Biographical	PGWB
PGWB	NS	Meaning*	Meaning	NS	PGWB*
PGWB	Housing*	Fast	Fast	Grade*	PGWB
PGWB	Housing*	Slow	Slow	NS	PGWB
PGWB	Housing*	Death	Death	NS	PGWB
PGWB	Housing*	Future	Future	NS	PGWB
PGWB	Housing*	Past*'	Past	Years Admission*'	PGWB*
PGWB	Housing*	C.I.	C.I.	NS	PGWB

Note. n = 85, *indicates the independent variable significantly affects the dependent variable ($p\leq.05$), *' indicates the independent variable had more of a significant effect on the dependent variable compared to the other independent variables analysed, Biographical = age, highest grade completed, whether housed in disassociation & segregation or elsewhere, the number of years since they were not prisoners, and the number of years since admission; NS = not significant, PGWB = PGWB Index, Fast = Fast Tempo, Slow = Slow Tempo, Death = Attention to Death, Future = Future Orientation, Past = Past Orientation, C.I. = Consciousness Index.

Research Questions

1. What Is The Relationship Between Perceived Meaning Of Time And Perceived Level Of Well-Being?

PGWB index considered the dependent variable. The inmates' perceptions of the meaning of time uniquely explained 26.57% of the significant variance in their perceptions of general well-being, (i.e. PGWB Index), regardless of the influences of the person-environment variables. The inmates' perceptions of the meaning of time affected the PGWB Index raw scores by approximately 10 units. The PGWB Index has a range of 0 to 110 possible scores. Therefore, their positive or negative evaluations of time had an important effect on their perceptions of general well-being because it can change their PGWB Index scores from being included in one category of the PGWB scores to another (i.e., Severe Distress, Moderate Distress, Positive Well-Being) (see Table 4.8). Those inmates who perceived a less (more) positive meaning of time tended to perceive a significantly lower (higher) level of general well-being (see Tables 4.45 & 4.46).

Meaning considered the dependent variable. The inmates' perceptions of their general well-being uniquely explained 22.33% of the significant variance in their perceptions of the meaning of time. However, because their perceptions of general well-being only altered the raw scores of the Meaning scale by .02620 units, it had little importance in affecting their positive or negative evaluation of time. The range of possible scores for the Meaning scale are 1 to 7. Those inmates who perceived a higher (lower) level of general well-being tended to significantly perceive a more (less) positive meaning of time, regardless of the influences of the person-environment factors (see Tables 4.57 & 4.58).

Discussion. The results indicate that there is a significant reciprocal relationship between general well-being perception and the perception of the meaning of time. However, the direction of the relationship is stronger when the perception of general well-being is regarded as the dependent variable, and the perception of the meaning of time is the predictor because the standardized slope is larger (Beta = .53935) in this direction than in the other direction (Beta = .50615) (see Tables 4.46 & 4.58).

Prison imposes a discomfort of waiting, a sense of time as a burden, and a feeling of sameness and predictable repetition of meaningless routines. The time that must pass before the inmate can go free hangs ominously over every prison experience, giving a feeling that time spent in prison is wasted or taken away from the inmate's life (Meisenhelder, 1985). Therefore, adaptive strategies may be employed by the inmates to deter from such a negative evaluation of time so that a better feeling of subjective well-being is obtained. An adaptive strategy employed may be to try to sleep wherein time passes effortlessly. Paradoxically, the common inmate problem of insomnia may result from the increased importance which is attached to sleep (Meisenhelder, 1985). The expressed desire for sedatives and narcotics, and the illicit drug use may be attempts to make the time to pass effortlessly and more quickly (Beck, 1983, Goldstone et al, 1958; Hicks et al, 1984). Activity involvement, seeking professional assistance, self-mutilation, and prison riots may also be adaptive strategies employed to obtain a more positive meaning of time, and a higher perception of well-being. The excitement and sense of purpose achieved through these actions may help the inmate to 'do time' and to lessen the 'hard time' (Meisenhelder, 1985).

The overall mean of the inmate sample for Meaning (m = 4.4341) suggests that generally, the inmates tended to experience time as more positive. This may indicate that they may have adapted to some extent. Because the inmates in the sample, who perceived themselves to be more severely distressed, also had a significantly less positive meaning of time compared to those who perceived themselves to be in Moderate Distress, or with Positive Well-Being (see Table 4.12), the more severely distressed inmates were experiencing more 'hard time' and may not have adapted as well. Therefore, the evaluation of time as positive or negative appeared to have significantly affected the inmates' perceptions of their general well-being.

2. What Is The Relationship Between The Perception Of Fast Tempo And Perceived Level Of Well-Being?

PGWB index considered the dependent variable. The inmates' perceptions of how quickly time is passing over the life time did not significantly affect their perceptions of general well-being. However, whether the inmates were housed in D&S or elsewhere in the prison explained 8.0% of the significant variance in their perception of general well-being. Those inmates housed in D&S tended to perceive a significantly lower level of general well-being compared to those inmates housed elsewhere. Whether they were housed in D&S or elsewhere in the prison affected the PGWB Index raw scores by approximately 13.6 units. Therefore, this variable appears to have an important effect on their perceptions of general well-being, regardless of their perceptions of Fast Tempo and the influences of the other person-environment factors (see Tables 4.45 & 4.46).

Fast tempo considered the dependent variable. The inmates' perceptions of their general well-being did not significantly affect their perceptions of how quickly time is passing over the life time. However, the highest grade that they completed at school explained 3.91% of the significant variance in Fast Tempo. Those inmates who completed a higher (lower) grade at school perceived time to be passing significantly more (less) quickly over the life time, regardless of their perceptions of general well-being and the influences of person-environment factors. The highest grade completed affected the Fast Tempo raw scores by .09423 units, so it had some importance in their perceptions of Fast Tempo. The Fast Tempo scale has a range of possible scores from 1 to 6 (see Tables 4.57 & 4.58).

Discussion. There does not appear to be a significant relationship between the perceptions of Fast Tempo and the perceptions of general well-being, in either direction, in the inmate sample. Contrary to these findings, a previous study found that those predominately female elders who perceived time as passing more quickly were significantly more healthy emotionally than their counterparts who subjectively saw time as passing slowly (Baum et al, 1984). Differences in the results may be due to different conceptualization and measurement of fast tempo, and age and sex differences. However, in the inmate study, some of the person-environment factors were controlled in the analysis, and Fast Tempo was orthogonally transformed to its "pure" form without the influences of the other Time Experience Scales (TES) variables that affect the relationships (see Table 4.11 for variables that affect zero order correlations involving Fast Tempo). Therefore, a more stringent analysis was conducted compared to the other study. However, it may be that an inmate sample is different from other samples regarding their perceptions of fast tempo in relation to their perceptions of general well-being.

Whether the inmates were housed in D&S or elsewhere in the prison significantly affected their perceptions of general well-being, but the highest grade completed did not. The highest grade completed significantly affected their perceptions of Fast Tempo, but whether they were housed in D&S or elsewhere in the prison did not. Perhaps those people who completed a higher grade at school, tended to be more interested in educational pursuits and other activities, which keep them occupied because filled time is perceived as going more rapidly (Kuhlen & Monge, 1968). Perhaps having a higher education increases the opportunities of what one can do with one's life, and what life seems to hold forth for the individual affects time passage. Those with a more positive view perceived clock time as moving more quickly than those with a more negative view (Feifel, 1957).

3. What Is The Relationship Between The Perception Of Slow Tempo And Perceived Level Of Well-Being?

PGWB index considered the dependent variable. The inmates' perceptions of how slowly time is passing in particular personal situations did not significantly affect their perceptions of general well-being. However, whether the inmates were housed in D&S or elsewhere explained 8.0% of the significant variance in their perceptions of general well-being. Those inmates in D&S perceived significantly lower levels of general well-being compared to those housed elsewhere, regardless of their perceptions of Slow Tempo and the influences of the person-environment factors (see Tables 4.45 & 4.46). Where the inmates were housed affected the PGWB Index raw scores by approximately 13.3 units. Therefore this variable appears to have an important affect on their perceptions of general well-being.

Slow tempo considered the dependent variable. The inmates' perceptions of general well-being did not significantly affect their perceptions of how slowly time is passing in particular personal situations. Also, none of the person-environment factors significantly affected their perceptions of Slow Tempo (see Tables 4.57 & 4.58).

Discussion. There does not appear to be a significant relationship in either direction between the inmates' perceptions of how slowly time is passing in particular personal situations and the perceptions of general well-being. The general discomfort and negative connotation given to time when prison time seems to move very slowly, results in the inmate experiencing 'hard' time (Meisenhelder, 1985). It would be expected that this would lead to a lower subjective feeling of well-being, which is not reflected in the results. However, some inmates incidently commented that they felt like they were "in limbo" and are often "not aware of time passing". Perhaps this is an adaptive strategy employed to obtain a better sense of well-being. Because of this comment, and because Fast Tempo also did not significantly affect their perceptions of general well-being, perhaps the *unawareness* of time passage, rather than the awareness of time passage, as in fast and slow tempo, may be related to subjective well-being in an inmate sample. The means of Fast and Slow Tempo for the inmates who perceived themselves to be in Severe Distress, Moderate Distress, and Positive Well-Being were also not significantly different (see Table 4.12). This lends support to the proposition that the unawareness of time passing quickly or slowly may not be important to their perceptions of general well-being. This contention is supported by the proposition by Newman (1982), who suggested that as consciousness (i.e., health) increases, an individual moves in the direction of the unawareness of time (i.e., timelessness). Perhaps the unawareness of time passing is a necessary adaptive strategy employed by some inmates in order to obtain a higher level of well-being.

4. What Is The Relationship Between The Perception Of Attention To Death And Perceived Level of Well-Being?

PGWB index considered the dependent variable. The inmates' attention to their personal death did not significantly affect their perceptions of general well-being. However, where they were housed significantly explained 8.0% of the variance in their perceptions of general well-being. Those inmates in D&S perceived significantly lower levels of general well-being compared to those housed elsewhere. Where they were housed affected the PGWB Index raw scores by approximately 12.9 units. Therefore, this variable appears to have an important effect on their perceptions of general well-being, regardless of their attention to their personal death, and the influences of the person-environment factors (see Tables 4.45 & 4.46).

Attention to death considered the dependent variable. The inmates' perceptions of their general well-being and the other person-environment variables did not significantly affect their perceptions of attention to personal death (see Tables 4.57 & 4.58).

Discussion. There was not a significant relationship in either direction between perceived level of general well-being and attention to death. Death is often seen as a negation of being, therefore to maintain the integrity of the human field, death must be overcome or denied. Also, the thought of personal death produces fear and anxiety (Anderson-Schorr, 1983). It would therefore be expected that the inmates' attention to their personal death would affect their perceptions of general well-being. However, it may be that the meaning of time attributed when anticipating personal death may be important before attention to personal death becomes significant to a person's well-being perception.

5. What Is The Relationship Between The Perception Of Future Orientation To Perceived Level Of Well-Being?

PGWB index considered the dependent variable. The extent to which inmates' focus their thoughts and activities on the future did not affect their perceptions of general well-being. However, where they were housed explained 8.0% of the significant variance in their perceptions of general well-being. Those inmates in D&S perceived significantly lower levels of general well-being compared to those housed elsewhere, regardless of the extent to which they focused their thoughts and activities to the future, and the influences of the person-environment factors. This variable affected the PGWB Index raw scores by approximately 13.8 units. Therefore this variable appears to have an important affect on their perception of general well-being (see Tables 4.45 & 4.46).

Future orientation considered the dependent variable. The inmates' perceptions of general well-being did not significantly affect the extent to which they focused their thoughts and activities to the future. This was also true for the person-environment variables (see Tables 4.57 & 4.58).

Discussion. There was not a significant relationship in either direction between the perception of future orientation and perceived level of well-being. Without a definite sense of an attainable future for most prison inmates (Meisenhelder, 1985), focusing thoughts and activities to a greater or lesser extent on the future may not influence their perceptions of their general well-being.

6. What Is The Relationship Between The Perception Of Past Orientation And The Perceived Level Of Well-Being?

PGWB index considered the dependent variable. The extent to which inmates focus their thoughts and activities to the past uniquely explained 6.8% of the significant variance in their perceptions of general well-being. Those inmates who focused more (less) on the past perceived significantly lower (higher) levels of general well-being. This variable affected the PGWB Index raw scores by approximately 5.4 units. Therefore, it appears to have some effect on well-being perception (see Tables 4.45 & 4.46).

Where the inmates were housed also significantly affected their perceptions of general well-being but their perceptions of Past Orientation had more of a significant relative effect on the variance of the PGWB Index compared to where they were housed (the standardized slope was larger) (see Table 4.46). Those inmates in D&S perceived significantly lower levels of general well-being compared to those housed elsewhere.

Past orientation considered the dependent variable. The inmates' perceptions of their general well-being uniquely explained 6.64% of the significant variance in their perceptions of the extent to which they focused their thoughts and activities to the past. Their perceptions of general well-being altered the Past Orientation raw scores by .01428 units. Because the Past Orientation scale has a range of possible scores of 1 to 6, this variable is of minimal importance to their perceptions of the past. Those inmates who perceived a higher (lower) level of general well-being focused significantly less (more) to the past (see Tables 4.57 & 4.58).

The number of years since they were admitted to this prison also significantly affected their perception of past orientation, and this variable had more of an affect on their perceptions of past orientation compared to the effect of their perceptions of general well-being (the standardized slope was larger) (see Table 4.58). Those inmates who had spent a longer (shorter) period of time in this prison since admission focused significantly less (more) to the past.

Discussion. There does appear to be a significant reciprocal relationship between the perception of past orientation and their perceptions of general well-being. However, the direction of the relationship appears to be stronger when their perceptions of general well-being is considered the dependent variable because the standardized slope (Beta = -.27972) is larger than when the relationship is going in the other direction (Beta = -.27589). Also, their perceptions of past orientation had more of a significant effect on their perceptions of general well-being compared to the significant effect of where they were housed. However, the number of years since they were admitted to this prison appears to have had more of a significant effect on their perceptions of past orientation compared to their perceptions of general well-being.

Morris and Zingle (1977) found that inmates incarcerated for longer periods of time tended to be future oriented. This result is consistent with the inmate study results. Perhaps inmates experience more negative feelings about their personal past, so therefore, if they focus more (less) on their past, they would perceive a lower (higher) level of general well-being. Intuitively, this makes sense, because all inmates have been accused and convicted of committing a crime in the past. The personal crisis involved with this process would result in significant negative memories about the past. The extent of dwelling upon the past therefore, would affect their general well-being perceptions. Another explanation could be that as time passes the memories of the past tend to fade. There may be a point in the incarceration when the time until freedom is shorter than the time served. The inmates may therefore focus less on the past and more on events in the future.

7. What Is The Relationship Between The Perceived Estimation Of Time (Perceived Duration) As Indicated By The Consciousness Index And Perceived Level Of Well-Being?

PGWB index considered the dependent variable. The inmates' estimation of 40 s by the production method as calculated by the Consciousness Index did not significantly affect their perceptions of general well-being. However, where they were housed explained 8.0% of the variance in their perceptions of general well-being. Those inmates in D&S perceived significantly lower levels of general well-being compared to those housed elsewhere, regardless of their perceptions of the estimation of time and the influences of the person-environment factors. Where they were housed affected the PGWB Index raw scores by 13.6 units. Therefore this variable appears to have an important affect on their perceptions of general well-being (see Tables 4.45 & 4.46).

Consciousness index considered the dependent variable. Neither the inmates' perceptions of general well-being nor the person-environment factors significantly affected their perceived estimation of time as indicated by the Consciousness Index (see Tables 4.57 & 4.58).

Discussion. There does not appear to be a significant relationship, in either direction, between the perceived estimation of time (perceived duration) as indicated by the Consciousness Index, derived by the production method and the perceived level of well-being. Similar results were also found in previous research (Engle, 1984, 1986; Nojima et al, 1987). It therefore appears that the subjective perception of well-being may not be related to how people estimate an interval of clock time. Although Newman (1979) theorized that the Consciousness Index may reflect the wholeness or health of an individual (i.e., consciousness), she later suggests that the Consciousness Index involves a comparison to clock time and that perhaps this ratio should not include a comparison to clock time because it emphasizes a physical, linear view of time. Fitzpatrick (1980) postulated that non-linear temporal experience may be more indicative of an individual's wholeness. M.A. Newman (personal communication, March 23, 1990) stated that the use of the Psychological General Well-Being Schedule to measure subjective well-being is not equated with her conceptualization of health because quantifying well-being places it on the wellness-illness continuum, a different paradigm of health.. Therefore, these may be possible explanations as to why there was not a significant relationship of perceived general well-being with the Consciousness Index in the study.

General Effects Of The Person-Environment Variables On The Relationship Between Time and Well-Being Perception

Whether the inmates were housed in D&S or elsewhere in the prison was the only person-environment variable analysed that significantly affected their perceptions of general well-being, regardless of the influences of the other person-environment variables and time perception variables analysed, except for the case of when Meaning was analysed. Being housed in D&S appears to have an adverse affect on the inmates' perceptions of their general well-being. However, it is not known whether their lower perceptions of general well-being was the result of being in D&S, or whether it was this perception to begin with that led to behavior that resulted in their transfer to D&S. Perhaps it was a little of both.

Of all the independent variables analysed for their effects on the perceptions of general well-being, the meaning of time had the most important effect (the standardized slope was the largest) (see Table 4.46). Age did not significantly affect the inmates' well-being perceptions. Similar results were found in other studies (Engle, 1986; Palmore & Luikart, 1972). However, Tessler and Mechanic (1978) found that poorer perceived health status was significantly affected by older age in predominately female subjects. Diener (1984) reported that the correlation between age and subjective well-being was near zero, regardless of whether other variables were controlled. The highest grade completed also did not significantly affect the inmates' well-being perceptions. Similar results were found in other studies (Engle, 1984;

Palmore & Luikart, 1972). However, in studies of predominately female adult subjects, and of predominately male subjects, poorer perceived health status was significantly related to a lower education level (Tessler & Mechanic, 1978). Diener (1984) reported that the literature seemed to suggest that education tends to have an influence on subjective well-being but the effects are not strong and seem to interact with other variables such as income.

Effects Of Time Perception Variables Considered Altogether On Well-Being Perception

When the person-environment variables were controlled, and when all the time perception variables together were analysed, only Meaning, Past Orientation, and Attention to Death significantly affected the perceptions of general well-being. Meaning explained 29.6% of the significant variance in the PGWB Index. Past Orientation then explained an additional 8.0% of the significant variance, and Attention to Death explained an additional 3.6% of the significant variance in the PGWB Index. The Meaning of time had the most affect (it had the largest standardized slope) (see Table 4.52). The unstandardized slopes were 10.65577, -5.67348, and -3.91929 for Meaning, Past Orientation, and Attention to Death respectively. These three time perception variables altered the raw scores in the PGWB Index by approximately 4 to 11 units (see Tables 4.51 & 4.52). Those inmates who perceived a more (less) positive meaning of time, who focused less (more) on the past, and who perceived less (more) attention to their personal death perceived significantly higher (lower) levels of general well-being. The equation for predicting the PGWB Index scores follows (a = 55.08773): PGWB Index Score = 55.08773 + 10.65577 (Meaning Score) - 5.67348 (Past Orientation Score) - 3.91929 (Attention to Death Score). The analysis suggests that the meaning of time may be important in the perception of attention to death, before attention to death has any significant effect on their perceptions of general well-being.

Where the inmates were housed did not provide any additional significant variance in their perceptions of general well-being when Meaning was included in the analysis. This seems to suggest that it is the perceived positive or negative evaluation of time that is attributed to being housed in D&S or elsewhere in the prison that may be more important than where they are housed. Some inmates, for whatever reasons, may prefer to be housed in D&S where they can 'do their time' in relative isolation from other inmates and from the events taking place in the prison. Alternatively, some inmates may prefer not to be housed in D&S.

Conclusions

From the analyses, it appears that inmates' perceptions of the meaning of time and past orientation may be more important for predicting their perceptions of general well-being compared to predicting their perceptions of the meaning of time and past orientation from their perceptions of general well-being. Where the inmates were housed appears to have significantly affected their perceptions of general well-being as well, but did not appear to significantly affect their perceptions of the meaning of time and past orientation. The number of years since they were admitted to this prison significantly affected their past orientation, and none of the person-environment variables analysed significantly affected their meaning of time. These relationships are modelled in Figure 2. Based on the study results obtained from this inmate sample, the following conclusions have been formulated:

1. The perception of the meaning of time predicts the perception of well-being.

2. The perception of past orientation predicts the perception of general well-being.

3. Whether the inmates are housed in D&S or elsewhere predicts their perceptions of general well-being.

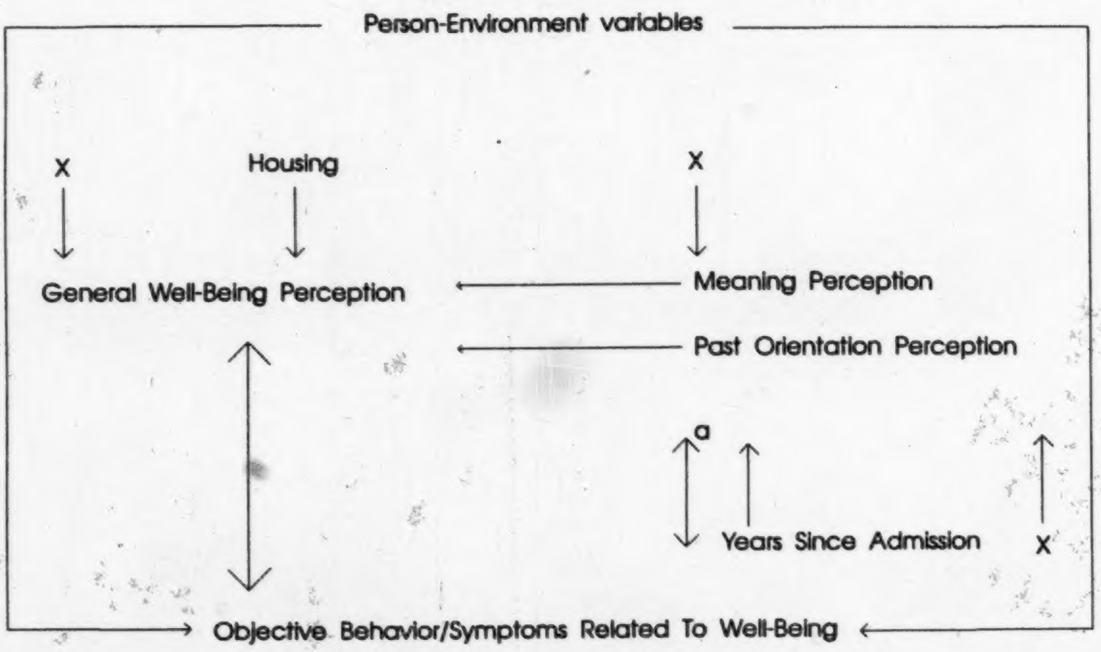
4. The number of years since inmates have been admitted to the prison predicts their perceptions of past orientation.

5. There is no relationship between the perception of fast tempo and the perception of general well-being.

6. There is no relationship between the perception of

Figure 2

Model 1 Of Relationship Between Time And Well-Being Perception In Prison Inmates


Person-Environment variables
X
Housing
X
General Well-Being Perception
Meaning Perception
Past Orientation Perception
a
Years Since Admission
X
Objective Behavior/Symptoms Related To Well-Being

Note. x = other person-environment variables that may be related but not included in this analysis,
Housing = whether housed in disassociation or segregation or elsewhere in prison,
$\longleftrightarrow^{a}$ indicates the objective behavior/symptoms affect and are affected by the two time perception variables.

slow tempo and the perception of general well-being.

7. There is a relationship between the perception of attention to death and perceived general well-being.

8. There is no relationship between the perception future orientation and the perception of general well-being.

9. There is no relationship between the perception of perceived duration (i.e., estimation of time) and the perception of well-being.

However, when the time perception variables were analysed together, a different model of the relationship between well-being perception and time perception resulted (see Figure 3). None of the person-environment variables, including housing, significantly affected well-being perception. The variable, Attention to Death, now had a significant effect on well-being perception. It is not known which model would better explain the relationship between general well-being perception and time perception.

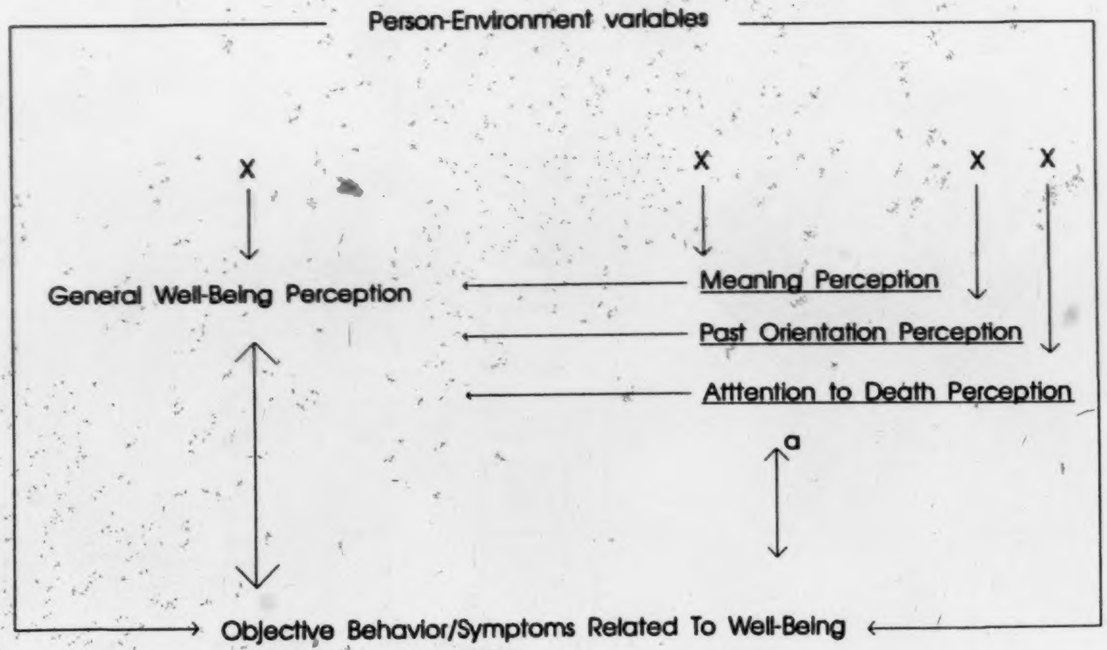
Other Major Findings

Well-Being Perception

Approximately 62.4% of the inmate sample perceived themselves to be in moderate or severe distress, while only 37.6% perceived positive well-being (see Table 4.8). However, in a study on American males from the general population, 77.4% perceived themselves to have positive well-being, and only 22.8% perceived themselves to be in severe or moderate distress (H.J. Dupuy, personal

Figure 3

Model 2 Of Relationship Between Time And Well-Being Perception In Prison Inmates


Person-Environment variables
X
X
X
X
General Well-Being Perception
Meaning Perception
Past Orientation Perception
Atttention to Death Perception
a
Objective Behavior/Symptoms Related To Well-Being

Note. x = other person-environment variables that may be related but not included in this analysis.
$\xleftrightarrow{}^{a}$ indicates the objective behavior/symptoms affect and are affected by the three time perception varaibles.

communication, March 3, 1991). There are two possible reasons why a larger proportion of inmates in the study perceived themselves to be in well-being distress compared to those males in the other study. The general abnormality of prison as a human environment results in a heightened sense of self-awareness and increased sensitivity to signs of personal deterioration with fear of psychic deterioration (Meisenhelder, 1985). Also, the conditions of imprisonment itself adversely affects subjective well-being. However, it is not known if the inmates had their perceptions of well-being before they were admitted to prison, or if these perceptions will change when they are released (i.e., for those who will be released).

Those inmates who completed a lower grade at school and those who tended not to be working and/or going to school or taking educational courses, perceived themselves to have significantly more of a depressed mood compared to those who completed a higher grade at school. Those inmates who completed grade 8 or lower tended to perceive more of a depressed mood (Chi-square = 19.71, p = .0031). This variable did not significantly affect general well-being perception when the person-environment variables were controlled (see Table 4.28). It is not known whether it was because they were depressed that they were not working and/or going to school, or if this perception resulted because they were not working and/or going to school or taking educational courses.

Those inmates who felt that their chances were poor for obtaining parole at their next parole eligibility date (PED) perceived significantly lower levels of general well-being, significantly more of a depressed mood, and less positive well-being compared to those who felt that their chances were good (see Table 4.16). Those inmates who felt that their chances were poor for release, sentence acquittal, retrial etc. at their soonest important date (i.e., PED, MS, hearings, judicial reviews etc.) perceived significantly lower levels of general well-being, more of a depressed mood, less positive well-being, and less vitality than those who felt that their chances were good (see Table 4.17). It therefore appears that what they perceived their chances to be at their important dates were important to well-being perception. Those inmates housed in disassociation and segregation (D&S) perceived significantly more of a depressed mood, less positive well-being, less self-control, less vitality, and lower general levels of well-being compared to those housed in population, induction and health care (see Tables 4.20 & 4.45). However, it is not known whether they had these perceptions before they came to D&S.

Those inmates serving a life or indefinite sentence did not perceive significantly different well-being perceptions compared to those serving definite sentences (see Table 4.38), when person-environment factors were controlled.

Time Perception

The inmate sample, as a whole, tended to perceive a more positive meaning of time, to view time as passing more quickly over the life time and more slowly in particular personal situations, to have less attention to personal death, to focus their thoughts and activities more on both the future and the past, and to significantly produce shorter time intervals than the 40 second standard (see Table 4.9). The results seem to indicate that time is perceived in a multidimensional manner.

The inmates' perceptions of the estimation of time (perceived duration), as derived from the production method, were not significantly related to their perceptions of the other time perception attributes, even when the other time perception variables were controlled by partial correlations. This seems to indicate that the judgement of chronometric time passage by the production method, and subjective time seem to be very different kinds of time perception judgments. However, the interval length of 40 s measured objectively may not be sensitive to the variables measured. Different time intervals judged and measured may produce different results (Barocas, 1971; Feifel, 1957).

The results of time estimation measurements have often been interpreted subjectively in the literature in terms of fast tempo or slow tempo. Barocas (1971) obtained some evidence to support this. However, the inmate study results indicated that there does not appear to be a relationship between the perception of time estimation and fast or slow tempo. This seems to indicate that interpreting the results in a subjective manner may not be valid when using measures of temporal experience that rely on clock time (Moore, 1982; Newman, 1976, 1982). Many investigators have reported that the ability to estimate time intervals is intact in spite of the subjective feeling that it is slow or fast, and it reflects a learned response to temporal experience (Clausen, 1950; Hawkins et al, 1985; Kitamura & Kumar, 1984; Tysk, 1984a). However, the measurement of fast and slow tempo in the inmate study includes retrospective time judgments which may not apply to the direct judgment of an interval of clock time (Smith, 1975). Also, tempo is viewed in a multidimensional manner, whereas interpreting tempo from time production assumes a bipolar view of tempo, and the attribute of time estimation is assumed to be different than the attribute of tempo in the inmate study. The study results seem to support these views.

Implications

Implications For Correctional Nursing

It is assumed that successful adjustment and maintenance of overall health may have more to do with personal views of health than how health professionals rate it (Palmore & Luikart, 1972; Tessler & Mechanic, 1978), and that persons view their health in a more global fashion and respond and react more experientially to their overall sense of well-being (Tessler & Mechanic, 1978). Given these assumptions, and considering the findings of this study, it is important for correctional nurses to be aware of the following:

1. The majority of inmates tended to perceive themselves as having moderate or severe well-being distress. Additional factors that detract from well-being would therefore significantly amplify their distress and lower their ability to function. Therefore, when they express seemingly 'trivial' well-being concerns to the correctional nurses, these concerns may indeed be significant to their well-being. Attention to these concerns, while teaching the inmates to develop personal skills to better handle their concerns in the future, would make a significant difference to their clients' well-being, and would prevent more serious client symptoms and behaviors related to well-being in the future.

2. A novel nursing care measure may be to assess inmates' subjective well-being perceptions upon admission to the prison for initial screening of high risk inmates. The 22 item Psychological General Well-being questionnaire (Dupuy, 1984) can be completed quickly for this purpose. Alternatively, other measures for well-being perception assessment might be more appropriate. Appropriate nursing action could then be taken for those inmates who are

assessed to perceive severe well-being distress and early referral to other health professionals and correctional staff may be indicated. This may also establish a baseline of the inmates' well-being perceptions, and facilitate the formulation of the nursing care plan. Also, further assessment of their subjective well-being perceptions could be done when deemed to be necessary. Assessing the inmates' subjective well-being perceptions may also be used to evaluate whether the inmates' subjective well-being perceptions have changed (i.e., for those in severe well-being distress) after nursing care has been provided. The assessment of inmate subjective well-being perceptions before they are transferred or released may help to identify those inmates in severe well-being distress so that prompt nursing action can be taken, and so that follow-up care can be communicated to other agencies for those in severe well-being distress. This would also provide clinical evidence as to whether incorporating well-being perception in nursing care is of practical benefit.

3. Those inmates who completed a lower grade at school perceived themselves to have significantly more of a depressed mood compared to those who completed a higher grade at school. Those who completed grade 8 or less tended to perceive more of a depressed mood. Therefore, collection of this information by the nurse is important, in order to identify those inmates with a lower completed grade at

school (i.e., grade 8 may be used as a guide) so that they can be assessed and nursing action be taken to prevent further deterioration and to promote well-being. Encouraging the inmate to upgrade his education may not only be important for his well-being while in prison, but also for when he is released (i.e., if he is released).

4. Those inmates who were not working and/or going to school or taking educational courses tended to perceive significantly more of a depressed mood compared to those who were. Therefore, identifying those inmates so that they can be assessed and nursing action be taken to prevent further deterioration and to promote well-being may be important. Encouraging the inmate to participate in activities such as these may be important to their well-being.

5. Those inmates who felt that their chances were poor for obtaining parole, for release, sentence acquittal etc., perceived significantly lower levels of general well-being, more of a depressed mood, less positive well-being, and less vitality compared to those who felt that their chances were good. Therefore, collecting information about when these dates are and assessing what inmates feel their chances are at some time before these dates arrive will identify those who feel that their chance are poor. They can then be assessed and nursing care can be given to prevent further deterioration and to promote well-being.

6. Those inmates who were housed in D&S perceived

significantly more of a depressed Mood, less positive well-being, less self-control, less vitality, and lower general levels of well-being compared to those housed in population, health care or induction. Therefore, providing adequate nursing care specifically for this area is indicated. It may not be appropriate to house those inmates who perceive themselves to have more of a depressed mood in D&S because D&S seems to exacerbate the perception, or at least does not seem to lessen the perception.

7. Those inmates who perceived a less positive meaning of time tended to perceive significantly lower levels of general well-being compared to those who perceived a more positive meaning of time. Those inmates who focused their thoughts and activities more to the past tended to perceive a significantly lower level of general well-being compared to those who focused less of their thoughts and activities to the past. It appears that those inmates who had a mean score of 3.8378 on the Meaning scale of the Time Experience Scales (TES), and those inmates who had a mean Past Orientation score of 4.5432 tended to perceive themselves to be in severe distress. Perhaps an additional simple way to identify those inmates who perceive themselves to be in severe distress may be to assess their perceptions of the meaning of time, which only consists of 14 items on the Time Experience Scales, and to assess their perceptions of their past orientation, which only has 4 items. This assessment

can be completed quickly. This assessment could provide an initial screening to identify inmates who may be at risk in relation to severe well-being distress (e.g. suicidal, depression, self-mutilation). It could also be used as a guide to explore (i.e., with the inmate identified to be in severe distress) his perception of the meaning of time, his orientation to the past, possible reasons for his perceptions, and to explore possible ways to achieve a more positive meaning of time and less orientation to the past so that his general well-being perception would be increased. This may ultimately lead to symptoms and behaviors that are thought to be more healthy. Alternatively, other measures for time perception assessment might be more appropriate. This would provide a different perspective to the health promotion of an inmate population wherein the perception of time appears to be so significant. It would also provide clinical evidence as to whether incorporating time perception in nursing care is of practical benefit. Also, if it is assessed, for example, that the inmate is very past oriented, then long range nursing goals may not be appropriate.

8. To be aware that the way inmates perceive time may be important to their adaptation to the prison environment and to other factors. Therefore, being more past oriented, or having a less positive meaning of time may not always be detrimental to their well-being. Perhaps these perceptions

are necessary before a more positive meaning of time and less attention to the past and higher levels of well-being are achieved.

9. To be aware that behavior displayed by inmates, such as excessive sleeping, frequent requests for sedatives and narcotics, verbal outbursts, fantasy behavior, self-mutilation etc., may be adaptive strategies employed to achieve a more positive meaning of prison time and a higher perception of well-being. Helping the inmate to become aware that these may be possible reasons for this behavior, and exploring with the inmate, more socially acceptable, and less destructive ways of adapting, in order to achieve a more positive meaning of time and a higher level of perceived well-being, appear to be important. However, preventive nursing care taken before these behaviors are manifested would be more helpful to the inmate, and could result in less harm to correctional staff, and less destruction to correctional property.

The excessive preoccupation with sleep, and the importance attached to it may be related to the inmate perceptions of the meaning of time spent in prison, and their desire to have a time when they do not have to be aware of the passage of time, and where time passes effortlessly. Paradoxically, increased importance attached to sleep often results in insomnia. Exploring measures to induce sleep at night time may be important to their well-being. Seeking out research that deals with sleep may help to identify appropriate measures that may be implemented to promote sleep.

Limitations

The sampling method for this study serves as a major limitation to the generalizability of findings to other incarcerated samples. Sample representativeness may be reduced by the method of subject selection. Individuals who volunteer to participate and who understand and speak English may be different than those who do not volunteer and who do not understand and speak English. The potential for bias is a function of the number of non-responders and how much the non-responders differed from those who did respond. The response rate was only 35.39% and it is not known if or how much the non-responders differed.

Internal validity may be decreased due to subject response sets and to subjects altering, distorting, or misrepresenting their true state. The effects of investigator characteristics, such as sex, may have had an effect on subject response. Because the investigator did the interviewing and recording of all the data, investigator bias is a potential risk. However, having one interviewer insured consistency in the administration of the instruments.

The relationship between time and well-being perception was assumed to be reciprocal, but regression analysis models a one-way relationship. Therefore, the slope of the variable forced to enter last into the regression equation is likely to be a biased estimate of the effect of the variable. The effect of the independent variable on the dependent variable is overestimated because the dependent variable is assumed to also affect the independent variable. However, the regression analysis does give some kind of indication about the relationship between time and well-being perception which is a necessary first step in determining whether further research is warranted. When using analysis of variance and t-tests for the analysis, there were some unbalanced samples. Therefore the probability of finding a significant difference between the groups is less (Kraemer & Thiemann, 1987).

The inmates housed in disassociation and segregation were all interviewed in a different room than where those housed in population, health care, and induction were interviewed. These two rooms differed in lighting, space, and the number of objects in the rooms. These differences are assumed to have minimal effects.

The results were highly dependent upon the accuracy of the Psychological General Well-Being Schedule and the Time Experience Scales as measures of subjective well-being and subjective time perception respectively on prison inmates. It would be important to confirm the results using alternate measures on prison samples.

It was not possible within the context of this single study to assess all the dimensions of time perception and other dimensions of well-being perception. It would be important to examine these dimensions in future research.

It was also not possible within the context of this single study to assess the relationship of objective symptoms and behaviors with regards to time and well-being perceptions. It would be important to examine these relationships in future research.

Finally, the study examined the relationship between time perception and well-being perception at only one point in time. It did not assess the relationship over time. A longitudinal design would be required to accomplish this.

In light of the findings and limitations of the study presented here, the final section of the thesis will provide some directions for future research.

Directions For Future Research

Considerable scope exists for expanding and refining this promising area of inquiry regarding time perception and well-being perception. As implied in the previous section, it will not only be necessary to replicate this study on other inmate samples, but to confirm the results using alternate measures of time and well-being perception on prison samples. Also, examining other person-environment variables regarding the relationship between time and well-being perception is necessary. Lisrel model testing of the two models proposed regarding the relationship between time and well-being perception in the inmate sample is indicated. Well-planned and well-executed studies to confirm specifically the relationships of the meaning of time, past orientation, and attention to death to well-being perception are indicated.

It would also be important to assess other dimensions of time perception and well-being perception, and to assess the relationship of objective symptoms and behavior with regard to time and well-being perceptions on inmate samples. For example, it appears that inmate behaviors such as self-mutilation, drug and alcohol intoxication, and the intense preoccupation with sleep may be related to their time and well-being perceptions.

Further research must also continue to maintain a multidimensional time perception perspective. It does not appear to be appropriate to view time perception in a bi-polar manner. Related to this, studies exploring the relationship between the unawareness of time passage and subjective well-being in inmate samples are indicated.

Longitudinal studies are necessary to investigate the relationship of time and well-being perception over time. For example, exploring this relationship during and at different times after the inmates are released, and exploring the relationship before inmates are transferred to disassociation and segregation (D&S), while they are in D&S,

and after they return to other prison housing areas are necessary.

Comparative studies investigating the relationship between time and well-being perception are indicated. For example, studies comparing inmates from different prisons, comparing inmates to samples from the general population, and comparing male and female inmates on time and well-being perceptions are required. Also, comparing those inmates who perceive high well-being with those who perceive low well-being to investigate the characteristics and the behaviors of those who perceive high well-being is indicated. Exploration of this may help to determine what it is that promotes high well-being in inmates.

Studies on other samples of people who may feel less control, such as samples from nursing homes, psychiatric hospitals, rehabilitation centers, and from people who are immobilized or bed-ridden are warranted.

The consideration of time and well-being perceptions for assessment, screening purposes, for incorporation in nursing actions, and for evaluating nursing care would provide clinical support for the necessity of designing studies to specifically test those ares of nursing care where time and/or well-being perceptions may be most beneficial to the client. As our understanding of the relationship between time perception and well-being perception, and the factors included in this relationship grows, effective intervention strategies can then be developed to target these relationships. For example, intervention efforts might be directed toward specific variables that significantly affect a time perception variable in a manner that alters that time perception variable which results in a significantly more positive well-being perception.

Studies exploring the sleep patterns of inmates, and exploring possible ways to promote sleep for incarcerated people, and relating the sleep patterns to time and well-being perceptions are necessary.

The findings of this study have provided preliminary evidence of the relationship between time perception and well-being perception. This was a necessary prelude to well-planned and well-executed confirmatory studies (Kraemer & Thiemann, 1987). Overall, the work that remains to be done in order to understand and maximally assist inmates' well-being will not be accomplished by one or even a few research studies. Many coordinated efforts will be required. Time perception and well-being perception appear to be very promising concepts for offering a different perspective for health promotion.

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APPENDIX 1

DESCRIPTIVE CHARACTERIZATION OF THE 22 ITEMS AND 6 SUBSCALES OF PGWB INDEX

Note. From Dupuy, H. J. (1984). The Psychological General Well-Being (PGWB) Index. In N.K. Wenger, M. E. Mattson, C. D. Furberg, & J. E. Elinson (Eds.), Assessment of quality of life in clinical trials of cardiovascular therapies. (pp. 171-172). Greenwich, CT: Le Jacqq Publishing Inc. Copyright 1984 by Haymarket Doyma Inc., New York, NY. Reprinted by permission.

DESCRIPTIVE CHARACTERIZATION OF THE 22 ITEMS AND 6 SUBSCALES OF PGWB INDEX

GWB Subscales	Low Score	High Score	Item #	Abbreviated Item Content*
Anxiety	Extremely bothered by nervousness; very tense; anxious, worried, upset; often high-strung; felt under heavy pressure	Not bothered by nerves; low tension; not anxious; relaxed; little or no stress or strain	5 8 17 19 22	Bothered by nervousness Generally tense Anxious, worried, upset Relaxed, at ease versus high-strung Felt under strain, stress, or pressure
Depressed Mood	Intensely or often felt: depressed; downhearted and blue; hopeless	Never or rarely felt: depressed; downhearted and blue; or hopeless	3 7 11	Felt depressed Felt downhearted and blue Sad, discouraged, hopeless
Positive well-being	Low spirits; unhappy; never or seldom felt life interesting or cheerful	In excellent spirits; happy with life; daily life interesting; felt cheerful	1 9 15 20	General spirits Happy, satisfied with personal life Interesting daily life Felt cheerful, lighthearted
Self-control	Very concerned or disturbed about losing self-control; seldom felt emotionally stable	In definite control of behavior, thoughts, emotions and feelings; emotionally stable	4 14 18	In firm control Afraid losing control Felt emotionally stable, sure of self

APPENDIX 1 - continued

GWB Subscales	Low Score	High Score	Item #	Abbreviated Item Content*
General health	Often bothered by illness, bodily disorders; needed help in caring for self; worried or fearful about health	Rarely if ever bothered by illness; healthy enough to do things; not fearful or worried about health	2	Bothered by ill-ness, bodily disorders, or aches and pains
			10	Healthy enough to do things
			13	Concerned, worried about health
Vitality	Low in energy; seldom waking fresh, rested; dull, sluggish; tired, worn-out	Full of energy, pep; waking fresh, rested; felt active, vigorous; never felt tired, worn-out	6	Energy, pep, vitality.
			12	Waking feeling fresh, rested
			16	Felt active, vigorous versus dull, sluggish
			21	Felt tired, worn-out, used up

* Data refers to immediately preceding month,
PGWB = psychological general well-being.

APPENDIX 2

TIME PERCEPTION ATTRIBUTES CITED IN THE LITERATURE

TIME PERCEPTION ATTRIBUTES CITED IN THE LITERATURE

Author	Type of Work	Attributes
Ahmadi (1984)	empirical	estimation
Anderson-Schorr (1983)	theoretical	attention to death
Armstrong (1985)	theoretical	meaning
Aschoff (1985)	empirical	estimation
Baddely (1966)	empirical	estimation
Barndt & Johnson (1955)	empirical	span of future orientation
Barocas (1971)	empirical	estimation, tempo
Baugh & Mason (1986)	empirical	estimation
Baum et al. (1984)	empirical	tempo
Beck (1983)	empirical	estimation, tempo
Beiser (1987)	empirical	temporal dominance and relatedness
Boslough (1990)	theoretical	meaning, present, future, estimation, tempo, temporal relatedness and dominance, span of past, present, future orientation
Brink (1983)	empirical	temporal relatedness
Burd et al. (1984)	empirical	estimation
Cappella et al. (1977)	empirical	estimation
Carlson & Feinberg (1970)	empirical	estimation
Clausen (1950)	empirical	estimation
Cohen (1967)	theoretical	all critical attributes identified except attention to death

Author	Type of Work	Attributes
Collett (1974)	empirical	estimation
Cottle (1976)	theoretical	all critical attributed identified
Crandal & Reimanis (1976)	empirical	temporal dominance, and relatedness
Delay & Richardson (1981)	empirical	estimation
Delong (1981)	empirical	estimation
Devereaux-Melillo (1980)	empirical	estimation, meaning, tempo
Doob (1971)	theoretical	all critical attributes identified
Engle (1984, 1986)	empirical	estimation
Etou et al. (1989)	empirical	estimation
Feifel (1957)	empirical	estimation, meaning
Fitzpatrick (1980)	theoretical	estimation, meaning, tempo, past, present, future, span of past, present, future orientation
Fraisse (1963)	theoretical	all critical attributes identified
Fraisse (1984)	theoretical	succession, duration, estimation
Gilliland et al. (1946)	theoretical	estimation, tempo
Gjesme (1981)	empirical	future, span of future orientation
Goldstone et al. (1958)	empirical	estimation
Gorman & Wessman (1977)	theoretical	all critical attributes identified
Hawkins et al. (1988)	empirical	estimation, tempo

Author	Type of Work	Attributes
Herman et al. (1983)	empirical	estimation
Hicks et al. (1984)	empirical	estimation
Hoagland (1958)	empirical	estimation
Hornstein & Rotter (1969)	empirical	estimation
Joubert (1983)	empirical	tempo
Joubert (1984)	empirical	tempo
Keller (1980)	empirical	span of present, span of future orientation and span of past orientation
Kitamura & Kumar (1983)	empirical	estimation
Krus & Fletcher (1986)	empirical	estimation, meaning, tempo
Kuhlen & Monge (1968)	empirical	tempo, meaning, temporal dominance
Landau (1975)	empirical	span of future orientation
Lechelt (1976)	empirical	estimation
Lechelt & Borchert (1977)	empirical	estimation
Lechelt (1979)	empirical	estimation
Levitt & Leventhal (1978)	empirical	estimation
Low (1987)	theoretical	tempo, temporal dominance and relatedness, meaning, attention to death
Meisenhelder (1985)	empircal	tempo, meaning, attention to death, past, present, future, temporal dominance and relatedness, estimation
Mentzer & Anderson-Schorr (1986)	empirical	estimation
Monk & Moline (1988)	empirical	estimation

Author	Type of Work	Attributes
Moore (1982)	theoretical	estimation, tempo
Morris & Zingle (1977)	empirical	span of future orientation, future orientation
Neville (1980)	theoretical	estimation, past, present, future, span of future orientation, temporal dominance and relatedness
Neville et al. (1985)	theoretical	estimation, meaning, tempo, past, present, future, span of future orientation, temporal dominance and relatedness
Newman (1972, 1976, 1982)	empirical	estimation
Newman (1979, 1986, 1987)	theoretical	estimation, tempo
Newman & Gaudiano (1984)	empirical	estimation
Nojima et al. (1987)	empirical	estimation
Persson (1981)	empirical	meaning, past, present, future, temporal dominance and relatedness
Peterson (1987)	theoretical	tempo, past, present, future
Pfaff (1968)	empirical	estimation
Rabin (1957)	empirical	estimation
Rappaport et al. (1985)	empirical	temporal dominance, relatedness, span of past, present, future
Richter & Benzenhofer (1985)	empirical	estimation
Roos & Albers (1965)	empirical	meaning, span of future orientation, span of past orientation, past, present, future

Author	Type of Work	Attributes
Ruiz et al. (1967)	empirical	span of future orientation, span of past orientation, temporal dominance, past, present, future
Sanders (1986)	empirical	meaning, fast tempo, slow tempo, past, future, attention to death
Schilder (1936)	theoretical	meaning, estimation, tempo, past, present, future, span of future orientation, temporal relatedness and dominance
Shybut (1968)	empirical	span of future orientation
Siegman (1961)	empirical	estimation, span of future orientation
Smith (1975, 1984)	empirical	estimation
Smith (1979)	empirical	tempo, estimation
Stewart (1986)	empirical	estimation
Strumph (1986)	empirical	meaning, tempo, temporal dominance
Strumph (1987)	theoretical	estimation, meaning, tempo, past, present, future, attention to death, temporal relatedness and dominance
Tompkins (1980)	empirical	estimation
Tysk (1984a)	empirical	estimation
Tysk (1984b)	empirical	estimation
Tysk (1985)	empirical	estimation
Watts & Sharruck. (1984)	empirical	estimation
Westman (1987)	empirical	estimation
Wixen (1986)	empirical	estimation

Author	Type of Work	Attributes
Yarcheski & Mahon (1986)	empirical	span of future orientation
Yarcheski et al. (1987)	empirical	span of future orientation
Yeudall et al. (1986)	empirical	estimation
Zeitlhofer et al. (1984)	empirical	estimation

APPENDIX 3

DESCRIPTION OF TIME EXPERIENCE SCALES (Sanders, 1986)

DESCRIPTION OF TIME EXPERIENCE SCALES (Sanders, 1986)

Scale I: MEANING - measures how strongly time represents something positive or negative. It consists of 14 items, e.g., "My time is sweet-sour; happy-said; useful-useless."

Scale II: FAST TEMPO - consists of 8 items and measures the extent to which time is passing quickly over the life time, e.g., "The time between birthdays seems to get shorter; Many of my hours seem like minutes."

Scale III: SLOW TEMPO - consists of 10 items and measures the extent to which time passes slowly in particular personal situations, e.g., "When I'm alone, time often passes slowly; Time passes slowly when I don't feel well."

Scale IV: ATTENTION TO DEATH (FINALITY) - consists of 9 items that indicate how much thought is directed to the facet of personal death, e.g., "I think about the possibility of slowly dying from some illness."

Scale V: FUTURE ORIENTATION - consists of 7 items which measure the extent to which thoughts and activities focus on the future, e.g., "I think a lot about the future."

Scale VI: PAST ORIENTATION - consists of 4 items that measure the degree to which thoughts and activities are about the past, e.g., "I talk about the past."

APPENDIX 4

LETTER OF INVITATION FOR PILOT STUDY

LETTER OF INVITATION FOR PILOT STUDY

Health Care
____________ Institution
____________, Alberta
August 1, 1990

Dear Sir:

Reta Bulani, a nurse with prison experience, who is presently in the Master of Nursing program at the University of Alberta, has come to me. She is interested in doing a study to find out about inmates' experience of time and to see if inmates' experience of time relates to their overall health. In order to do this large study, she first has to conduct a pilot study with a minimum of 10 inmates to ensure that her research procedures are problem-free. You are one of the 60 inmates who have been randomly selected to receive this letter of invitation.

If you speak English and are interested in finding out more about this nurse's pilot study, please sign the attached form and return it to her in the envelope provided. Seal the envelope and put it in the institutional mail by August 14, 1990.

On August 15, Reta Bulani will randomly draw 10 envelopes from all those returned to her. You may or may not be one of the 10 inmates randomly selected to be in the pilot study, even if you decide to respond to this letter of invitation. She will then send each of these 10 inmates an institutional pass so she can meet separately with each inmate, explain the pilot study, and ask for the inmates consent to participate.

Those inmates who decide to volunteer to be in Reta Bulani's pilot study will meet with her on an *individual* basis and verbally answer her questions about their experience of time and health.

Reta Bulani's pilot study has been approved by the Correctional Service of Canada and by the Faculty of Nursing at the University of Alberta.

Thank-you for your time.

Sincerely,

____________, Chief
Health Care
____________________, Institution

APPENDIX 5

INVITATION REPLY FORM FOR PILOT STUDY

INVITATION REPLY FORM FOR PILOT STUDY

I am willing to meet with Ms. Reta Bulani so that she can give me more information about the pilot study, and so that I can ask questions.

I realize that I may not be randomly selected to be in the pilot study even though I have responded to this letter of invitation.

After meeting with her, I am free to choose if I will or will not take part in the pilot study entitled: The Relationship Between Subjective Time Perception and Self-Perception of General Well-Being In Prison Inmates.

NAME (Please print) ____

Please sign and put this form into the envelope and seal it. Put it in the institutional mail by August 14, 1990.

APPENDIX 6

CONSENT FORM FOR PILOT STUDY

CONSENT FORM FOR PILOT STUDY

Title of Research Proposal: The Relationship Between Subjective Time Perception and Self-Perception of General Well-Being In Prison Inmates.

Researcher	Advisor
Reta Bulani, Registered Nurse	Rene Day, R.N., Ph.D.
Master of Nursing Candidate	Professor
Faculty of Nursing	Faculty of Nursing
University of Alberta	University of Alberta
Phone: 492-7096	Phone: 492-7096

Purpose of the Pilot Study

The researcher is going to do two studies: a) a *pilot* study in *your* institution, and b) a ***main*** study in another ***institution***.

The purpose of the ***main*** study is to find out about inmate's experience of time and to see if it relates to what they think about their overall health.

The purpose of the *pilot* study is to make sure that the way the researcher asks her questions about time and health are problem free.

Procedure

You will be asked to answer out loud questions from three questionnaires and to do a time task. It will take about two hours of your time in total to finish. There are no right or wrong answers to any of the questions or to the time task. You will *not* be asked to read or write because the researcher will write down your answers.

The kinds of questions that will be asked include some general personal information such as age and length of sentence. You will also be asked how strongly or weakly you feel some statements apply to you such as "Time seems to fly when I'm having fun." Another example of the questions that you will be asked is, "How much energy, pep and vitality did you have or feel during the past month?" How you feel that time passes will also be compared with a watch.

Risks and Benefits

You may not directly benefit from this pilot study. Results from this *pilot* study will help the researcher to do a better ***main*** study. Results from the ***main*** study may help nurses and doctors understand the relationship between what time feels like for inmates in a penitentiary, and what they think about their overall health. This, in turn, may help improve the health care inmates receive.

Voluntary Participation

You do not have to be in the *pilot* study if you do not want to be. If you prefer not to answer a question, just let the researcher know. You are free to withdraw from the pilot study at any time by saying, "I wish to stop." You will not have to tell anyone why you decided to stop answering the researcher's questions if you do not wish to. Taking part in the pilot study or withdrawing from the pilot study will not affect your parole eligibility, sentence, privileges, or health care treatment.

A security office may be present if it is an institutional requirement and therefore your answers may not be confidential. If answering the questions in the presence of the security officer makes you feel uncomfortable, you may withdraw from the pilot study by saying, "I do not want to be in the pilot study."

Confidentiality

Your name will not be on any of the forms. You will only be identified by a number. Only the researcher will know your number. All information, including your name and number, will be kept in a locked cabinet. At the end of the ***main*** study, your name and number will be destroyed. The completed questionnaire will be kept for five years, and will then be destroyed.

When the results of the **main** study are completed, I plan to publish my results in scientific journals and to present my findings to health care professionals and perhaps to correctional staff. I want you to know that when I do so, I will not identify you in my talks or writing.

You will not be given personal results after the pilot study, but a copy of the summary of the entire study will be given for inmate use after the **main** study is finished. The Correction Service of Canada will also be given a copy of the entire study after the study is finished.

If the information obtained in the pilot study is used to answer research questions that are different from the ones talked about in this consent, the researcher will get ethical approval according to the usual University procedure before beginning such research.

If you have any questions of concerns at any time, you are free to call the researcher, Reta Bulani, or advisor, Dr. Rene Day.

Consent

Since some inmates cannot read or write, the consent to be in the study will be tape recorded. You will be asked to repeat the following on tape:

"I, ____, have had this information read to me and agree to be in the pilot study called, 'The Relationship Between Subjective Time Perception and Self-Perception of General Well-Being In Prison Inmates.' I have had the opportunity to ask questions about the pilot study and my part in it. The researcher, Reta Bulani, has answered all my questions at this time. I am aware that during this study, should the researcher become aware that there seems to be a problem with my health, she will discuss this with me, before contacting Health Care on my behalf. I have been given a copy of this consent form."

APPENDIX 7

LETTER OF INVITATION FOR MAIN STUDY

LETTER OF INVITATION FOR MAIN STUDY

Health Care
____________, Institution
____________, Alberta
September 1, 1990

Dear Sir:

Reta Bulani, a nurse with prison experience, who is presently in the Mater of Nursing program at the University of Alberta, has come to me. She is interested in doing a study to find out about inmates' experience of time and to see if inmates' experience of time relates to their overall health. In order to do this study, she needs volunteer inmates who will be willing to meet with her on an individual basis to verbally answer some questions about this.

If you speak English and are interested in finding out more about her study, please sign the attached form and return it to her in the envelope provided. Seal the envelope and put it in the institutional mail by September 14, 1990.

She will then send an institutional pass to you sometime between September 15, 1990 and February, 1991 so that she can meet with you, explain the study, and ask for your consent to take part.

Those inmates who decide to volunteer to be in Reta Bulani's study will meet with her on an *individual* basis and verbally answer her questions about their experience of time and health.

Her proposed study has been approved by the Correctional Service of Canada and by the Faculty of Nursing at the University of Alberta.

Thank-you for your time.

Sincerely,

____________, Chief
Health Care
____________________, Institution

APPENDIX 8

INVITATION REPLY FORM FOR MAIN STUDY

INVITATION REPLY FORM FOR MAIN STUDY

I am willing to meet with Ms. Reta Bulani so that she can give me more information about the study, and so that I can ask questions.

After meeting with you, I am free to choose if I will or will not take part in the study entitled: The Relationship Between Subjective Time Perception and Self-Perception of General Well-Being In Prison Inmates.

NAME (Please print) ________________________________

Please sign and put this form into the envelope and seal it. Put it in the institutional mail by September 14, 1990.

APPENDIX 9

CONSENT FORM FOR MAIN STUDY

CONSENT FORM FOR MAIN STUDY

Title of Research Proposal: The Relationship Between Subjective Time Perception and Self-Perception of General Well-Being In Prison Inmates.

Researcher	Advisor
Reta Bulani, Registered Nurse	Rene Day, R.N., Ph.D.
Master of Nursing Candidate	Professor
Faculty of Nursing	Faculty of Nursing
University of Alberta	University of Alberta
Phone: 492-7096	Phone: 492-7096

Purpose of the Study

The purpose of this study is to find out about inmate's experience of time and to see if it relates to their overall health.

Procedure

You will be asked to verbally answer questions from three questionnaires and to do a time task. It will take about two hours of your time in total to finish. There are no right or wrong answers to any of the questions or to the time task. You will *not* be asked to read or write because the researcher will write down your answers.

The kinds of questions that will be asked include some general personal information such as age and length of sentence. You will also be asked how strongly or weakly you feel some statements apply to you such as "Time seems to fly when I'm having fun." Another example of the questions that you will be asked is "How much energy, pep and vitality did you have or feel during the past month?" How you feel about how time passes will also be compared with a watch.

Risks and Benefits

You may not directly benefit from this study. Results from this study may help nurses and doctors understand the relationship between what time feels like for inmates in a penitentiary and what they think about their overall health. This, in turn, may help improve the health care inmates receive.

Voluntary Participation

You do not have to be in the study if you do not want to be. If you prefer not to answer a question, just let the researcher know. You are free to withdraw from the study at any time by saying, "I wish to stop." You will not have to tell anyone why you decided to stop answering the researcher's questions. Taking part in the study or withdrawing from the study will not affect your parole eligibility, sentence, privileges or health care treatment.

A security officer may be present if it is an institutional requirement and therefore your answers may not be confidential. If answering the questions in the presence of the security officer makes you feel uncomfortable, you may withdraw from the study by saying, "I do not want to be in the study."

Confidentiality

Your name will not be on any of the forms. You will only be identified by a number. Only the researcher will know your number. All information, including your name and number, will be kept in a locked cabinet. At the end of the study, your name and number will be destroyed. The completed questionnaires will be kept for five years, and will then be destroyed.

When the results of the study are completed, I plan to publish my results in scientific journals and to present my findings to health care professional and perhaps to correctional staff. I want you to know that when I do so I will not identify you in my talks or writing.

You will not be given personal results after the study, but a copy of the summary of the entire study will be given for inmate use after the study is finished. The

Correctional Services of Canada will also be given a copy of the study after the study is finished.

If the information obtained in this study is used to answer research questions that are different from the ones talked about in this consent, the researcher will get ethical approval according to the usual University procedure before beginning research.

If you have any questions or concerns at any time, you are free to call the researcher, Reta Bulani, or advisor, Dr. Rene Day.

Consent

Since some inmates cannot read or write, the consent to be in the study will be tape recorded. You will be asked to repeat the following on tape:

"I, ____, have had this information read to me and agree to be in the study called, 'The Relationship Between Subjective Time Perception and Self-Perception of General Well-Being In Prison Inmates.' I have had the opportunity to ask questions about the study and my part in it. The researcher, Reta Bulani, has answered all my questions at this time. I am aware that during this study, should the researcher become aware that there seems to be a problem with my health, she will discuss this with me, before contacting Health Care on my behalf. I have been given a copy of this consent form."

APPENDIX 10

BIOGRAPHICAL DATA QUESTIONNAIRE

BIOGRAPHICAL DATA QUESTIONNAIRE

Study Number: ______________________ Date: ______________________

1. What is your age as of your last birthday?
    1. Age ______
    2. No response ______

2. What is your marital status? (Mark one only)
    1. Now married (excluding separated) ______
    2. Separated ______
    3. Divorced ______
    4. Widowed ______
    5. Never married (single) ______
    6. Common-law ______
    7. Other (specify) ______
    8. No response ______

3. To what ethnic or cultural group(s) do you or did your ancestors belong? (mark as many as applicable).

    1. French ______
    2. Irish ______
    3. German ______
    4. Ukrainian ______
    5. Chinese ______
    6. Polish ______
    7. Inuit ______
    8. Metis ______
    9. English ______
    10. Scottish ______
    11. Italian ______
    12. Dutch (Netherlands) ______
    13. Jewish ______
    14. Black ______
    15. North American Indian _____

Or other ethnic or cultural groups. FOR EXAMPLE: Portuguese, Greek, Indian (India), Pakistani, Filipino, Japanese, Vietnamese, etc.

SPECIFY BELOW:

16. OTHER (specify) _______
17. No response ______

THE NEXT FEW QUESTIONS ARE ABOUT YOUR EDUCATION

4. What is the highest grade or years (0 to 13) of elementary or high school that you have completed?
    1. Grade or year ______
    2. Not applicable _____
    3. No response ______

5. What is your highest education credential?
    1. Less than a high school diploma ______
    2. High school diploma _____
    3. Technical school diploma/certificate _____
    4. College or university degree ______
    5. Graduate or professional degree ______
    6. Other _____
    7. No response ______

THE NEXT FEW QUESTIONS ARE ABOUT YOUR EMPLOYMENT

6. How many jobs have you held outside of prison in the past 10 years?
   1. Number ______
   2. Don't know ______
   3. No response ______
   4. Not applicable ______

7. What is the shortest time you have been employed in one job (in the past 10 years)?
   1. Less than 6 months ______
   2. 6 - 12 months ______
   3. more than 1 year - less than 3 years _______
   4. 3 years or more - less than 5 years ______
   5. Other _____
   6. Not applicable ______
   7. No response _____

8. What is the longest time you have been employed at the same job (in the past 10 years)?
   1. Less than 6 months ______
   2. 6 - 12 months ______
   3. more than 1 year - less than 3 years _______
   4. 3 years or more - less than 5 years ______
   5. Other _____
   6. Not applicable ______
   7. No response _____

9. What kinds of jobs have you been employed in outside of prison (in the past 10 years)? (Check off as many as applicable).

1. Arts (performing and creative, include crafts, tailoring) ______
2. Sports (salaried hockey, football player, etc.) ______
3. Business (administrator, manager, owner, consultant, accountant) ______
4. Clerical and related fields (secretarial, book keeper, cashier) ______
5. Farming/ranching ______
6. Health fields (non-physician, non-nurse) ______
7. Professions (law, medicine, nursing, psychology, engineering, clergy) ______
8. Public administrator or official, military ______
9. Semi-skilled or unskilled work (factory work, oil rigs, truck driver, waiting on tables) ______
10. Skills or technical trades (mechanic, cook) ______
11. Social work, counselling ______
12. Teaching or educational administration (including private lessons) ______
13. Other (specify) ______
14. Not applicable ______
15. No response ______

THE NEXT FEW QUESTIONS ARE ABOUT YOUR ACTIVITIES IN THE INSTITUTION

10. Are you presently working?
    1. Yes ______
    2. No ______
    3. No response ______

11. Are you presently going to school?
    1. Yes ______
    2. No ______
    3. No response ______

12. Where are you presently housed? (Mark one only)
    1. Disassociation and segregation ______
    2. Population ______
    3. Health care ______
    4. Induction unit ______
    5. Other (specify) ______
    6. No response ______

13. Approximately now long have you been housed in this area? (Give the best estimate you can).
    1. (Specify) YEARS ______ MONTHS ______ DAYS ______
    2. Do not know ______
    3. No response ______

14. What is the approximate date of your last admission to THIS institution? (Specify as accurately as you can).
    1. Specify date (approximate) _____
    2. Do not know _____
    3. No response _____

15. In your life time, approximately what is the total amount of time that you have spent in correctional institutions up until the present (including juvenile detention, remands, forensic units, prisons, etc.)?
    1. (Specify approximately) YEARS___ MONTHS___ DAYS___
    2. Do not know _____
    3. No response _____

16. From the time you were last 'on the street', what is the total amount of time that you have been incarcerated? (NOT including temporary absences. INCLUDING all previous institutions, remands, etc., you have been at).
    GIVE THE BEST ESTIMATE THAT YOU CAN
    1. (Specify approximately) YEARS___ MONTHS___ DAYS____
    2. Do not know _____
    3. No response _____

17. How long of a sentence are you PRESENTLY SERVING?
    1. (Specify) YEARS _____ MONTHS ____ DAYS ____
    2. Life sentence _____
    3. Indefinite sentence (indeterminate, preventive detention) _____
    4. Other (i.e., Lieutenant Governor's Warrant) - specify _____
    5. Do not know _____
    6. No response _____

18. When was your last parole eligibility date? (Give your best estimate).
   1. (Specify approximately) DATE ______________________
   2. Do not know _____
   3. Not applicable _____
   4. No response ______

19. Were you granted parole on your last parole eligibility date? (i.e., day parole, full parole, etc.)
   1. I was granted parole _____
   2. I was not granted parole _____
   3. Do not know _____
   4. Not applicable _____
   5. No response _____

20. When is your next parole eligibility date? (Give your best estimate).
   1. (Specify approximately) DATE____________
   2. Do not know _____
   3. Not applicable _____
   4. No response ______

21. What do you think your chances are for being granted parole at your next parole eligibility date? (i.e., day parole, full parole, etc.)
   1. Chances are good _____
   2. Chances are poor _____
   3. Do not know _____
   4. Not applicable _____
   5. No response _____

22. When is your Mandatory Supervision Date? (Give the best estimate).
    1. DATE ________________________
    2. Do not know _____
    3. Not applicable _____
    4. No response ______

23. Do you wish to be released on your Mandatory Supervision Date?
    1. Yes, definitely _____
    2. No ______
    3. Do not know _____
    4. Not applicable _____
    5. No response _____

24. When is your Warrant Expiry Date? (Give the best estimate).
    1. DATE ___________________
    2. Do not know _____
    3. Not applicable _____
    4. No response ______

APPENDIX 11

TIME EXPERIENCE SCALES (TES)

TIME EXPERIENCE SCALES (TES)

Section 1: Here are statements that describe how some people experience time. Read each statement. Circle the number that best describes how you think or feel about time. If you disagree with the statement, circle STRONGLY DISAGREE, DISAGREE or SOMEWHAT DISAGREE. If you agree with the statement, circle STRONGLY AGREE, AGREE or SOMEWHAT AGREE. Please

	Strongly Disagree	Disagree	Somewhat Disagree	Agree	Somewhat Agree	Strongly Agree
1. Time drags when I am waiting.	1	2	3	4	5	6
2. The older I get, the faster time seems to pass.	1	2	3	4	5	6
3. My thoughts are to a great extent with the here and now.	1	2	3	4	5	6
4. The rainy months seem to pass more slowly than the dry months.	1	2	3	4	5	6
5. Much of what I do today is for a better tomorrow.	1	2	3	4	5	6
6. At the end of each calendar year, I always wonder where time has gone.	1	2	3	4	5	6
7. I plan a lot for things to come.	1	2	3	4	5	6
8. Time passes slowly when I don't feel well.	1	2	3	4	5	6
9. I think a lot about the past.	1	2	3	4	5	6
10. I live for today.	1	2	3	4	5	6

Please go on to the next page

Circle the number that best describes your feelings.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
11. I never have enough time to do all the things that I want to.	1	2	3	4	5	6
12. When I am bored, times passes very slowly.	1	2	3	4	5	6
13. The time between birthdays seems to get shorter and shorter.	1	2	3	4	5	6
14. I think about suddenly dying in an accident.	1	2	3	4	5	6
15. I talk a lot about days gone by.	1	2	3	4	5	6
16. I often wonder where the day has gone.	1	2	3	4	5	6
17. I would like to know what will happen to my body after I die.	1	2	3	4	5	6
18. When I'm alone, time often passes slowly.	1	2	3	4	5	6
19. It bothers me that time passes year after year, carrying me closer and closer to death.	1	2	3	4	5	6
20. The more I think about time, the slower it passes.	1	2	3	4	5	6
21. I think a lot about the future.	1	2	3	4	5	6
22. My mind frequently turns to things that have already happened.	1	2	3	4	5	6
23. I think about how many years I may live.	1	2	3	4	5	6
24. Many of my hours seems like minutes.	1	2	3	4	5	6

Please go on to the next page

Circle the number that best describes your feelings.	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
25. I think about the fact that I will die.	1	2	3	4	5	6
26. I think about the possibility of slowly dying from some illness.	1	2	3	4	5	6
27. Much of my talk is about the future.	1	2	3	4	5	6
28. If I want time to pass quickly, it goes slowly.	1	2	3	4	5	6
29. Time is passing faster for me now compared to ten years ago.	1	2	3	4	5	6
30. I think about what people who are close to me will do after I die.	1	2	3	4	5	6
31. My thoughts are filled with former times.	1	2	3	4	5	6
32. The cold months seem to pass more slowly than the warm months.	1	2	3	4	5	6
33. I would like to know what will happen to me from now until my death.	1	2	3	4	5	6
34. When I see children growing, I am reminded of how quickly time flies.	1	2	3	4	5	6
35. My thoughts are fixed on time that is yet to come.	1	2	3	4	5	6
36. I would like to know how I will die.	1	2	3	4	5	6
37. When I am unhappy, time goes slowly.	1	2	3	4	5	6

Section 2: People sometimes use certain words to describe time, for example, "good" or "bad." In this section you find pairs of words joined by seven spaces. Complete the sentence using one of the two words. The sentence is, "My time is . . . . " Whether you check toward one word or the other in each pair depends on which words best describes time.

For example, if your time is extremely good, you should check:

GOOD __X__:____:_____:_____:_____:___:_____ BAD
extremely quite slightly neutral slightly quite extremely

If you decide that neither word describes time or if the two words do not seem to be how you think about time, then you should check the center space.

Never put more than ONE check between two words. Place each check in the MIDDLE of the space, not on the dots.

THIS

GOOD _____:____:_____:__X__:_____:___:_____ BAD
extremely quite slightly neutral slightly quite extremely

NOT THIS

GOOD _____:___X____:___X____:___:_____ BAD
extremely quite slightly neutral slightly quite extremely

For each question, complete the sentence using one of two words. "My time is . . . ."

38. HAPPY _____:____:_____:_____:_____:____:_____ SAD
extremely quite slightly neutral slightly quite extremely

39. USEFUL _____:____:_____:_____:_____:____:_____ USELESS
extremely quite slightly neutral slightly quite extremely

40. HOPEFUL _____:____:_____:_____:_____:____:_____ HOPELESS
extremely quite slightly neutral slightly quite extremely

41. UGLY _____:____:_____:_____:_____:____:_____ BEAUTIFUL
extremely quite slightly neutral slightly quite extremely

For each question, complete the sentence using one of two words. "My time is . . . ."

42. IMPORTANT______:_____:______:_____:______:_____:______ UNIMPORTANT
extremely quite slightly neutral slightly quite extremely

43. ALIVE ______:_____:______:_____:______:_____:______ DEAD
extremely quite slightly neutral slightly quite extremely

44. SWEET ______:_____:______:_____:______:_____:______ SOUR
extremely quite slightly neutral slightly quite extremely

45. COMPLETE ______:_____:______:_____:______:_____:______ INCOMPLETE
extremely quite slightly neutral slightly quite extremely

46. OLD ______:_____:______:_____:______:_____:______ NEW
extremely quite slightly neutral slightly quite extremely

47. DIFFICULT ______:_____:______:_____:______:_____:______ EASY
extremely quite slightly neutral slightly quite extremely

48. RISING ______:_____:______:_____:______:_____:______ FALLING
extremely quite slightly neutral slightly quite extremely

49. KIND ______:_____:______:_____:______:_____:______ CRUEL
extremely quite slightly neutral slightly quite extremely

50. YOUNG ______:_____:______:_____:______:_____:______ OLD
extremely quite slightly neutral slightly quite extremely

51. HEALTHY ______:_____:______:_____:______:_____:______ SICK
extremely quite slightly neutral slightly quite extremely

APPENDIX 12

THE PSYCHOLOGICAL GENERAL WELL-BEING SCHEDULE

Note. From Dupuy, H.J. (1984). The Psychological General Well-Being (PGWB) Index. In N.K. Wenger, M.E. Mattson, C.D. Furberg, & J.E. Elinson (Eds.), Assessment of quality of life in clinical trials of cardiovascular therapies. (pp. 353-356). Greenwich, CT: Le Jacq Publishing Inc. Copyright 1984 by Haymarket Doyma Inc., New York, NY. Reprinted by permission.

THE PSYCHOLOGICAL GENERAL WELL-BEING SCHEDULE*

CODE No.: ______________________________

AGE: ______

READ: This section of the examination contains questions about how you feel and how things have been going with you. For each question check ( ) the answer which best applies to you

1. How have you been feeling in general? (DURING THE PAST MONTH)

5 ☐ In excellent spirits
4 ☐ In very good spirits
3 ☐ In good spirits mostly
2 ☐ I have been up and down in spirits a lot
1 ☐ In low spirits mostly
0 ☐ In very low spirits

2. How often were you bothered by any illness, bodily disorder, aches or pains? (DURING THE PAST MONTH)

0 ☐ Every day
1 ☐ Almost every day
2 ☐ About half of the time
3 ☐ Now and then, but less than half the time
4 ☐ Rarely
5 ☐ None of the time

3. Did you feel depressed? (DURING THE PAST MONTH)

0 ☐ Yes-to the point that I felt like taking my life
1 ☐ Yes-to the point that I did not care about anything
2 ☐ Yes-very depressed almost every day
3 ☐ Yes-quite depressed several times
4 ☐ Yes-a little depressed now and then
5 ☐ No-never felt depressed at all

4. Have you been in firm control of your behavior, thoughts, emotions, or feelings? (DURING THE PAST MONTH)

5 ☐ Yes, definitely so
4 ☐ Yes, for the most part
3 ☐ Generally so
2 ☐ Not too well
1 ☐ No, and I am somewhat disturbed
0 ☐ No, and I am very disturbed

---

*A longer research version of the schedule is available from the author, Harold Dupuy, Ph.D.

5. Have you been bothered by nervousness or your "nerves"? (DURING THE PAST MONTH)

0 [ ] Extremely so-to the point where I could not work or take care of things
1 [ ] Very much so
2 [ ] Quite a bit
3 [ ] Some-enough to bother me
4 [ ] A little
5 [ ] Not at all

6. How much energy, pep, or vitality did you have or feel? (DURING THE PAST MONTH)

5 [ ] Very full of energy-lost of pep
4 [ ] Fairly energetic most of the time
3 [ ] My energy level varied quite a bit
2 [ ] Generally low in energy or pep
1 [ ] Very low in energy or pep most of the time
0 [ ] No energy or pep at all-I felt drained, sapped

7. I felt downhearted and blue DURING THE PAST MONTH.

5 [ ] None of the time
4 [ ] A little of the time
3 [ ] Some of the time
2 [ ] A good bit of the time
1 [ ] Most of the time
0 [ ] All of the time

8. Were you generally tense or did you feel any tension? (DURING THE PAST MONTH)

0 [ ] Yes-extremely tense, most or all of the time
1 [ ] Yes-very tense most of the time
2 [ ] Not generally tense, but did feel fairly tense several times
3 [ ] I felt a little tense a few times
4 [ ] My general tension level was quite low
5 [ ] I never felt tense or any tension at all

9. How happy, satisfied, or please have you been with your personal life? (DURING THE PAST MONTH)

5 [ ] Extremely happy-could not have been more satisfied or pleased
4 [ ] Very happy most of the time
3 [ ] Generally satisfied-pleased
2 [ ] Sometimes fairly happy, sometimes fairly unhappy
1 [ ] Generally dissatisfied, unhappy
0 [ ] Very dissatisfied or unhappy most or all the time

10. Did you feel healthy enough to carry out the things you like to do or had to do? (DURING THE PAST MONTH)

5 [ ] Yes-definitely so
4 [ ] For the most part
3 [ ] Health problems limited me in some important ways
2 [ ] I was only health enough to take care of myself
1 [ ] I needed some help in taking care of myself
0 [ ] I needed someone to help me with most or all of the things I had to do

11. Have you felt so sad, discouraged, hopeless, or had so many problems that you wondered if anything was worthwhile? (DURING THE PAST MONTH)
0 [ ] Extremely so-to the point that I have just about given up
1 [ ] Very much so
2 [ ] Quite a bit
3 [ ] Some-enough to bother me
4 [ ] A little bit
5 [ ] Not at all

12. I woke up feeling fresh and rested DURING THE PAST MONTH.
0 [ ] None of the time
1 [ ] A little of the time
2 [ ] Some of the time
3 [ ] A good bit of the time
4 [ ] Most of the time
5 [ ] All of the time

13. Have you been concerned, worried, or had any fears about your health? (DURING THE PAST MONTH)
0 [ ] Extremely so
1 [ ] Very much so
2 [ ] Quite a bit
3 [ ] Some, but not a lot
4 [ ] Practically never
5 [ ] Not at all

14. Have you had any reason to wonder if you were losing your mind, or losing control over the way you act, talk, think, feel or of your memory? (DURING THE PAST MONTH)
5 [ ] Not at all
4 [ ] Only a little
3 [ ] Some-but not enough to be concerned or worried about
2 [ ] Some and I have been a little concerned
1 [ ] Some and I am quite concerned
0 [ ] Yes, very much so and I

15. My daily life wa full of things that were interesting to me DURING THE PAST MONTH.
0 [ ] None of the time
1 [ ] A little of the time
2 [ ] Some of the time
3 [ ] A good bit of the time
4 [ ] Most of the time
5 [ ] All of the time

16. Did you feel active, vigorous, or dull, sluggish? (DURING THE PAST MONTH)
5 [ ] Very active, vigorous every day
4 [ ] Mostly active, vigorous-never really dull, sluggish
3 [ ] Faily active, vigorous-seldom dull, sluggish
2 [ ] Fairly dull, sluggish-seldom active, vigorous
1 [ ] Mostly dull, sluggish-never really active, vigorous
0 [ ] Very dull, sluggish every day

17. Have you been anxious, worried, or upset? (DURING THE PAST MONTH)
0 [ ] Extremely so-to the point of being sick or almost sick
1 [ ] Very much so
2 [ ] Quite a bit
3 [ ] Some-enough to bother me
4 [ ] A little bit
5 [ ] Not at all

18. I was emotionally stable and sure of myself DURING THE PAST MONTH.
0 [ ] None of the time
1 [ ] A little of the time
2 [ ] Some of the time
3 [ ] A good bit of the time
4 [ ] Most of the time
5 [ ] All of the time

19. Did you feel relaxed, at ease or high strung, tight, or keyed-up? (DURING THE PAST MONTH)

5 [ ] Felt relaxed and at ease the whole month
4 [ ] Felt relaxed and at ease most of the time
3 [ ] Generally felt high strung but at times felt fairly relaxed
2 [ ] Generally felt high strung but at times felt fairly relaxed
1 [ ] Felt high strung, tight, or keyed-up most of the time
0 [ ] Felt high strung, tight, or keyed up the whole months

20. I felt cheerful, lighthearted DURING THE PAST MONTH.

0 [ ] None of the time
1 [ ] A little of the time
2 [ ] Some of the time
3 [ ] A good bit of the time
4 [ ] Most of the time
5 [ ] All of the time

21. I felt tired, worn out, used up, or exhausted DURING THE PAST MONTH.

5 [ ] None of the time
4 [ ] A little of the time
3 [ ] Some of the time
2 [ ] A good bit of the time
1 [ ] Most of the time
0 [ ] All of the time

22. Have you been under or felt you were under any strain, stress, or pressure? (DURING THE PAST MONTH)

0 [ ] Yes-almostmore than I could bear or stand
1 [ ] Yes-quite a bit of pressure
2 [ ] Yes, some-more than usual
3 [ ] Yes, some-but about usual
4 [ ] Yes-a little
5 [ ] Not at all

APPENDIX 13

PERMISSION TO USE THE PGWB

April 11, 1988

Dear Reta Bulani,

I enjoyed our phone talk today. I hope some of the materials I am sending you will be "interesting;" while I expect most of it to be tedious!

Should you be asked, the Psychological General Well-Being schedule is in the "public domain" & may be used, but not copywrited? for practical &/or research purposes.

While I am the "sole author," I developed the PGW-B while working for the US Federal Gov't. Hence, it is available for use as is or even modified by any & all.

If you can, I would like you to use the Research Version, because I need data on its component parts.

I wish you well for your future,

Sincerely,

Harold J Dupuy PhD

APPENDIX 14

PERMISSION TO USE THE TES

Note. The personal address of the researcher has been deleted from the letter heading for security reasons.

June 11, 1990

Edmonton, Alberta
Canada
T5T 2J8

Sharon Sanders Ph.D.
Senior Employment Administrator
Pharmaceutical Research and Development Division
Bristol-Myers Company
5 Research Parkway
P.O. Box 5100
Wallingford, CT
06492-7660

Dear Ms. Sanders:

You will recall that you sent me information on the Time Experience Scales that you developed. My research proposal entitled "Relationship Between Subjective Time Perception and Self-Perception of Well-Being In Prison Inmates" has been approved by the Faculty of Nursing Ethics Committee, University of Alberta on June 7, 1990. I am now awaiting approval from the Correctional Service of Canada. I will be using the TES in order to capture the more multi-dimensional nature of time perception.

Please send me written documentation that gives me permission to use the Time Experience Scales. Please send it to my home address given in the letter heading. I would appreciate it very much. I look forward to hearing from you.

Respectfully,
Reta Bulani
Reta Bulani R.N., BScN
Graduate Student
Faculty of Nursing
University of Alberta

YOU HAVE MY APPROVAL — S. Sanders 6/20/90

APPENDIX 15

CORRESPONDENCE FOR COPYRIGHT PERMISSION

Note. The personal address of the researcher has been deleted from the letter headings for security reasons.

June 22, 1990

Edmonton, Alberta
Canada

Elizabeth Janice
Managing Editor
Le Jacq Publishing Inc.
47 Arch Street
Greenwich, Conneticut
U.S.A.
06830

Dear Elizabeth Janice:

I am presently enrolled in the Master of Nursing program at the University of Alberta, Edmonton, Alberta, Canada. For my thesis, I am planning to conduct a study entitled "Relationship Between Subjective Time Perception and Self-Perception of Well-Being In Prison Inmates". I would like to use the 22-item Psychological General Well-Being Index questionnaire to measure well-being. Dr. Harold Dupuy has written me and advised me that the questionnaire is in the public domain and therefore may be used for research purposes. Through telephone communication with him, I was able to find out your telephone number.

I would like permission to use information from chapter 9 (pp. 170-183) "The Psychological General Well-Being (PGWB) Index", from your book entitled: Assessment of Quality of Life in Clinical Trials of Cardiovascular Therapies (1984), for the purposes of a thesis. I would like to report on the administration, validity, reliability, generalizability, applications, strengths and limitations of the PGWB as indicated in this chapter. I would also like to reproduce Table 1, "Descriptive Characteristics of the 22 Item and 6 Subscales of PGWB Index" on pages 171 and 172 in my thesis. May I also have permission to photocopy the PGWB Index questionnaire contained in your publication?

Thank you very much for you time. I look forward to hearing from you.

Respectfully,

R. Bulani

Reta Bulani
Graduate Student

HAYMARKET
DOYMA INC.
53 PARK PLACE, NEW YORK, NY 10007, (212) 766 4300

July 16, 1990

Reta Bulani

Edmonton, Alberta
Canada

Dear Ms. Bulani,

Regarding your request to use information from our book entitled "Assessment of Quality of Life in Clinical Trials of Cardiovascular Therapies", we hereby authorize you to use the information as stated in your request and to reproduce Table 1 on pages 171,172. You may also photocopy the PGWB index. We do require, however, that you footnote all extractions properly, using the appropriate information found in the book.

Good luck with your thesis!

Sincerely,

Joseph Hinman
General Manager

APPENDIX 16

CERTIFICATION OF ETHICAL ACCEPTABILITY

University of Alberta
Edmonton
Canada T6G 2G3

Faculty of Nursing
3rd Floor Clinical Sciences Building

Certification of Ethical Acceptability for Research Involving Human Subjects

---

NAME OF APPLICANT: Reta Bulani

TITLE OF PROJECT: Relationship Between Subjective Time Perception and Self-Perception of Well-Being in Prison Inmates

---

The members of the review committee, having examined the application for the above-named project, consider the procedures, as outlined by the applicant, to be acceptable on ethical grounds for research involving human subjects.

June 11, 1990
Date

Anita E. Molzahn
A. Molzahn, RN, PhD
A/Chair
Ethics Review Committee
Faculty of Nursing

APPENDIX 17

PERMISSION FROM CORRECTIONAL SERVICE OF CANADA TO CONDUCT STUDIES

Note. The personal address of the researcher has been deleted from the letter heading for security reasons. Identifying information, such as the names of the institutions, has been deleted to ensure anonymity of the inmates in the sample.

Correctional Service Canada
Service correctionnel Canada

Commissioner
Commissaire

Ottawa, Canada
K1A 0P9

Your file Votre référence

Our file Notre référence
1435-2

June 29, 1990

Ms. Reta Bulani

EDMONTON, AB

Dear Ms. Bulani,

The Regional Research Committee is pleased to advise that approval is granted for your study "Relationship Between Subjective Time Perception and Self-Perception of Well-Being in Prison Inmates".

The Committee was quite impressed with the thoroughness of your background documentation and proposal. We do offer a few comments for your consideration.

1) You might consider revising the consent form to ensure that subjects are aware that the information collected will not be placed on their CSC file; and if they withdraw from the study, that all test materials will be destroyed.

2) You do not indicate where your data will be stored during the study - e.g. locked filed cabinet outside of institution.

3) You should be aware that many of the inmates at Institution are considered security inmates. Although this may not have an impact on your study, you may wish to remove references to security" inmates.

4) Since you have taken steps to allow the participation of illiterate inmates, it appears somewhat self-defeating to recruit volunteer subjects with a written letter. You may wish to consider another alternative.

You are now required to obtain the approval of the Wardens of
and Institution.

............/2

FREEDOM TO READ
LIBERTÉ DE LIRE

You may be requested, on occasion, to provide us with a report of your progress. You are required to provide us with a copy of your final report.

Please feel free to contact Joanne Severn at (306)975-4865 should you require any further information or assistance.

I look forward to hearing of your progress.

Yours truly,

W. Paul Oleniuk
Chairperson, Regional Research Committee

JS:jem

cc: Regional Research Committee
Warden, Institution
Warden, Institution

Regional Headquarters, Prairies
P. O. Box 9223
SASKATOON, Saskatchewan
S7K 3X5

APPENDIX 18

PERMISSION FROM WARDEN TO CONDUCT PILOT STUDY

Note. The name of the Warden and the institution have been deleted to ensure anonymity of the inmates in the sample.

Government of Canada Gouvernement du Canada

MEMORANDUM **NOTE DE SERVICE**

To
A
Reta Bulani

From
De
Warden
Institution

Security Classification - Classification de sécurité	
Our File - Notre référence	
Your File - Votre référence	
Date	12 July 90

Subject
Objet
RESEARCH PROJECT

1. Reference our discussion regarding your study Relationship Between Subjective Time Perception and Self-Perception of Well-being in Prison Inmates.

2. This memorandum will serve as your authorization to conduct the study at Institution.

3. I look forward to your return to the Institution and wish you success with your project.

Warden
Institution

APPENDIX 19

PERMISSION FROM WARDEN TO CONDUCT MAIN STUDY

Note. The name of the Warden and the institution have been deleted to ensure anonymity of the inmates in the sample.

Government of Canada Gouvernement du Canada

MEMORANDUM NOTE DE SERVICE

To
A
Reta Bulani

From
De
A/Warden

Security Classification - Classification de sécurité

Our File - Notre référence

Your File - Votre référence

Date
1990 July 09

Subject
Objet
RESEARCH PROJECT

1. Reference our discussion regarding your study Relationship Between Subjective Time Perception and Self-Perception of Well-being in Prison Inmates.

2. This memorandum will serve as your authorization to conduct the study at Institution.

3. I look forward to your return to the Institution and wish you success with your project.

AUTHOR NOTES

H.J. Dupuy, Ph.D., the author of the 22-item Psychological General Well-being Schedule, has also developed an additional mental health section, an 18-item questionnaire, and a 52-item research version.

Requests for information and copies of these questionnaires should be sent to Harold J. Dupuy, Ph.D., Route 1, Box 124A , Vesuvius, Virginia, 24483. Telephone: (804) 922-7467.

Dr. H.J. Dupuy gives an excellent overview of the 22-item Psychological General Well-Being Schedule in a chapter from the copyrighted book, Assessment of Quality of Life in Clinical Trials of Cardiovascular Therapies (1984) edited by N.K. Wenger, M.E. Mattson, C.D. Furberg, and J. Elinson, and published by Le Jacq Publishing Incorporated.

Request for copyright permission from this book should be sent to Joseph Hinmar, General Manager, Haymarket Doyma Inc., 53 park Place, new York, New York, 10007. Telephone (212) 766-4300. or to Elizabeth Janice, Managing Editor, Le Jacq Publishing Inc., 47 Arch Street, Greenwich, Conneticut, U.S.A., 06830. Telephone (203) 625-0194.

Requests for information and a copy of the Time Experience Scales should be sent to Sharon Sanders, Ph.D., R.N., Senior Employment Administrator, Pharmaceutical Research and Development division, Bristol-Meyers Company, 5 Research parkway, P.O. Box 5100, Wallingford, Conneticut, 06492-7660.

Telephone (203) 384-6058.

Requests for information about the computer package for orthogonal procrustes confirmatory item factor analysis should be directed to John Reddon Ph.D., at Alberta Hospital Edmonton, Box 307, Edmonton, Alberta, T5J 2J7. Telephone (403) 472-5418, or at the Department of Educational Psychology, University of Alberta, Edmonton, Alberta, T6G 2G3. Telephone (403) 492-5245.